

The Mining Journal

AILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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2161.—VOL. XLVII.

LONDON, SATURDAY, JANUARY 20, 1877.

WITH
SUPPLEMENT. PRICE SIXPENCE
PER ANNUM, BY POST, £1 4s.

J. JAMES H. CROFTS, STOCK AND SHARE BROKER,
AND MINING SHARE DEALER,
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.
ESTABLISHED 1842.

Business transacted in all descriptions of MINING Stocks and Shares (British and Foreign), Consols, Banks, Bonds (Foreign and Colonial), Railways, Miscellaneous, Insurance, Assurance, Telegraph, Shipping, Canal, Gas, Water, and shares.

Business transacted in Stocks and Shares not having a general marketvalue.

Business in COLLIERY and IRON Shares, and in the principal WAGONS AND

MANUFACTURING COMPANIES of the NORTH of ENGLAND and SCOTLAND.

Business in all the principal COTTON SPINNING Shares.

J. H. CROFTS, having now established CORRESPONDING AGENCIES in all the

TOWNS of the United Kingdom, is prepared to deal in the various LOCAL

and SHARES at close market prices.

Accounts opened for the Fortnightly Settlement.

Monthly and Daily Price Lists issued.

Bankers: City Bank, London; South Cornwall Bank, St. Austell.

GENERAL DEALINGS in the following, or part:—

Argentine. 50 Flagstaff, £2 17s. 6d.
Aberdaulau, 12s. 20 Frontino, £1 17s. 6d.
Benton, 29s. 20 Glynn, £2 1/2.
Bonyfylde, 12s. 5 Great Laxey.
Cotone, £1 10s. 25 West Van, 9s. 6d.
Goll, 22s. 10 I. X. L., 20s.
Heddal, 22s. 25 Talyllyn.
Llanbry, 11s. 50 Tincroft, £2 1/2.
Llanrwst, 22s. 40 Van Consols, 42.
Mark Valley, 30s. 25 W. Tankerville, £1 1/2.
Monydd Gorddu, £3 1/2. 5 West Chiverton, £1 1/2.
New Cook's Kitch., 35s. cum div.
North Laxey, 21s. 6d. 2 West Tolgas, £63.
Pestarena, 4s. 6d. 5 West Seton, £30.
Parys Mount, 10s. 3d. 10 West Craven Moor.
Penstruthal, 11s. 6d. 40 Wheal Grenville.
Pennant, 10s. 25 Wheal Uny, £2 1/2.
Penruthal, 11s. 6d. 20 Wheal Agar.
Pendaron, 24s. 5 Wheal Jane, £2.
Pentreher, £2 1s. 9d. 10 Wh. Crebior, £3 1/2.
Pool, £11 1/2. 50 Prince of Wales, 4s 9d.
Porth, £14. 10 Wh. Crebior, £3 1/2.
Shares sold for forward delivery (one, two, or three months) 10 Wh. Crebior, £3 1/2.
on deposit of 20 per cent.

SPECIAL BUSINESS in POSITIVE ASSURANCE SHARES.
Business on hand in all the principal TIN, COPPER, and LEAD Shares.

AQUARIUM, HOTEL, AND MISCELLANEOUS SHARES.—
SPECIAL BUSINESS in Brighton Aquarium, Royal Westminster Aquatic
Langham Hotel, Inns of Court Hotel, Queen's Hotel (Norwood), Milner's
Newcastle Chemical, Lawes' Chemical, North-Eastern Banks.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

IRON AND IRON SHARES.—BUSINESS in all the
PRINCIPAL SHARES and DEBENTURES.—FOR SALE:—

Argentine. 10 Consell, £13.
Benton. 50 Charnock House, £2 3s. 9.
Benton Vaughan. 10 Skerne.
Cakemore. 20 Thorp's Gawber, £2 1/2.
Daff & Swan, £1 1/2. 10 Darlington.
Ellington. 25 West Cumberland.
Newport Aber., £2 1/2.
Whitehaven.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

TON SPINNING SHARES.—BUSINESS in all OLDHAM
SHARES, and in those of other DISTRICTS:—

SPECIAL BUSINESS in the following:—

Actual
Name of Mill. Last four dividends,
per cent. Closing quotations.
Buyers, Sellers,
January 19.

Central 30, 26, 30, 10 ... £2 1/2 ... £2 1/2
Greenacres 30, 30, 20, 5 ... 4/4 ... 5/4
Green Lane 30, 25, 30, 25 ... 80 ... 82
Oldham Twist 6, 32, 26, 12 ... 25/4 ... 26 1/4
Royton 30, 20, 10, 10 ... 2/4 ... 3
Shaw 12 1/2, 20, 16, 10 ... 2/4 ... 3
Star 17 1/2, 25, 20, 8 ... 2/4 ... 3
Windsor 30, 26, 20, 10 ... 3 ... 3 1/4

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

REIGN BONDS—ARGENTINE—EGYPTIAN—RUSSIAN,
SPANISH, TURKISH. SPECIAL BUSINESS, and latest information.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

AILWAYS.—SPECIAL BUSINESS. Fortnightly accounts
opened on receipt of the usual cover.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

R. WILLIAM H. BUMPUS,
STOCK AND SHARE BROKER,
44, THREADNEEDLE STREET, LONDON, E.C.
[Established 1867.]

SPECIAL BUSINESS, at close prices, in the SHARES of all the principal
HOME and FOREIGN MINES.

BUMPUS devotes special attention to
MINING INVESTMENTS,

in a position to give reliable information and advice respecting the same.

SALE, at prices annexed:—

Argentine. 20 Glynn, £2 1/2.
Benton. 100 Gold Run.
Bodidrie. 30 Kapanga, £4 1/2.
Blue Tent. 50 Last Chance, 21s. 6d.
Cordes of Chili. 20 Leadhills, 28s. 9d.
Chicago, £6 3s. 9d. 100 Marke Valley, 22s.
Cervant, £2 1/2. 100 Marke.
Don Pedro, 12s. 9d. 20 N. Chiverton, off. wd.
East Caradon, 26s. 25 New Querbrada, £4 1/2.
East Van, £9 1/2. 50 North Laxey, 22s. 6d.
Eberhardt, £8 11s. 3d. 40 Penstruthal, 13s.
Flagstaff, 23 1/2s. 10 Pateley Bridge, £2 1/2.
Fenton. 30 Pennerley, 20s. 6d.

IMPORTANT.

Capitalists, and all who seek SOUND and PROFITABLE INVESTMENTS,
the following are confidently recommended, and they will be found worth the
attention of every Investor, viz.:—

ARGENTINE COMPANY (LIMITED).

CONDES COMPANY OF CHILI (LIMITED).

BLUE TENT HYDRAULIC GOLD MINES (LIMITED).

particulars of the Mines, and every information concerning the several

Companies, may be obtained (in the form of a Circular) on application to Mr.

BUMPUS, who has special facilities for dealing in the shares.

RICHMOND CONSOLIDATED—FLAGSTAFF.—Investors and others interested
in these companies, who may be desirous of obtaining information and
advice to operations in the shares at the present time, are requested to communicate
with the undersigned.

WILLIAM HENRY BUMPUS, SWORN BROKER.

Offices: 44, Threadneedle Street, London, E.C.

Business transacted in Stock Exchange Securities and Miscellaneous shares of
description. Fortnightly accounts opened. References given and required
necessary. A Stock and Share List forwarded free on application.

WALERS—THE NATIONAL PROVINCIAL BANK OF ENGLAND, E.C.

R. THOMAS THOMPSON, JUN., 1, PALMERSTON
BUILDINGS, BISHOPSGATE STREET, LONDON, E.C.

THOMPSON strongly recommends the purchase of the shares of the CHAPEL
COLLIERY COMPANY (Limited) for investment. This company, notwithstanding
the stagnation in trade, clears a profit of 2s. per ton on its coal, and
when the new works are completed he presents handsome returns will be much

R. GEORGE BUDGE, STOCK AND SHARE DEALER, 4,
ROYAL EXCHANGE BUILDINGS, LONDON, E.C. (Established
1842).
has SPECIAL BUSINESS in—Cakemore Colliery, Chapel House,
Crebior, Spears Moor, South Crofty, Monydd Gorddu, Derwent, Wheal
Aberdulau, Talyllyn, Exchequer, Balmynheir, Bodidrie, East Chiverton,
Cornwall, Don Pedro, Treborth Consols, Combmarin. Special business in
most promising lead mine, see specimens at the office of the company from
discoveries.

MESSRS. PETER WATSON AND CO.,
54, OLD BROAD STREET, LONDON, E.C.
BUSINESS in STOCKS and SHARES.
RAILWAYS, BANKS, DIVIDEND LEAD MINES, &c.
BANKERS: THE ALLIANCE BANK (Limited).
A CIRCULAR published MONTHLY. Single Copy, 6d.; Annually, 5s.

M. R. A. L. FRED E. COOKE,
STOCK AND SHARE DEALER,
76, OLD BROAD STREET, LONDON, E.C.
(Established 1853.)

Transacts every description of BUSINESS in ENGLISH FUNDS, RAILWAY
STOCKS, and MISCELLANEOUS SHARES.
SPECIAL ATTENTION GIVEN TO MINING ENTERPRISE.
TRADING COMPANIES' SHARES (including COTTON SPINNING) dealt in
at close prices.

1877.—SAFE AND LUCRATIVE MINING and other
INVESTMENTS, to yield about TEN PER CENT.,
with prospect of a great rise.

PANDORA, MONYDD GORDDU, BODIDRIS,
and CAKEMORE COLLIERY. SPECIAL BUSINESS.

SPECIAL INVESTMENT CIRCULAR.
In consequence of the great demand for the January number, no more
copies for this month can be supplied. Early application is requested for the
February number, to be published on the 1st prox. It is the MOST VALUABLE
and UNIQUE CIRCULAR issued.

M. R. A. L. FRED E. COOKE,
76, OLD BROAD STREET, LONDON, E.C.
(Established 1853.)

BUSINESS in the FOLLOWING SHARES. Telegrams or
letters replied to immediately:—
10 Altami. 10 Flagstaff. 10 Penstruthal.
10 Argentine. 10 Frontino. 10 Parys Mountain.
11 Aberdulau. 15 Great West Van. 15 Penman.
10 Ashton. 20 Grogwinion. 10 Pennerley.
30 Bodidrie. 30 Glenroy. 100 Plymlimon.
50 Cathedral. 5 Glyn. 5 Roman Gravels.
30 Cardiff and Swansea. 20 Holm bush. 5 St. Patrick.
60 Chontales. 15 I. X. L. 5 Tankerville.
15 Chapel House. 50 Javali. 1 Van.
5 Chicago. 15 Llanrwst. 10 Van Consols.
10 Derwent. 15 Last Chance. 10 Wheat Crebior.
40 Don Pedro. 5 Headlills. 20 Wheal Agar.
20 East Van. 20 Ladywell. 15 West Ashton.
15 East Chiverton. 10 Newport Abercarn. 25 West Tankerville.
5 Eberhardt. 40 North Laxey. 5 West Pateley Bridge.

ALFRED E. COOKE, 76, OLD BROAD STREET, LONDON.

M. R. T. E. W. THOMAS, SHARE BROKER,
3, GREAT WINCHESTER STREET BUILDINGS, E.C.
Established 1857.

The following are the latest prices at which business could be done. Where the
difference between the buying and selling price is wide transactions may be
effected at an intermediate price:—

Buyers, Sellers,	Buyers, Sellers,
Bodidrie. £1 1/2 & 2 1/2	Pennant. £5 1/2 & 2 1/2
Derwent. 2 1/2 & 3	Pennerley. 3/4 & 1
Devon Great Consols. 4 & 4 1/2	Penstruthal. 10s. & 11s.
Don Pedro. 11s. & 13s.	Plymlimon. 5s. & 6s.
Eberhardt. 8 1/2 & 9 1/2	Prince of Wales. 23 & 33
East Caradon. 1 & 1 1/2	Richmond. 6 1/2 & 7
East Van. 8 1/2 & 10 1/2	Roman Gravels. 13 1/2 & 14 1/2
Exchequer Gold. 1 1/2 & 2 1/2	Rookhope. 20s. & 22s.
Flagstaff. 3 1/2 & 4 1/2	Santa Barbara. 24 & 25
Frontino. 1 1/2 & 2 1/2	San Pedro. 1 & 1 1/2
Glenroy. 1 1/2 & 2 1/2	South Condurrow. 6 & 6 1/2
Glyn. 2 & 2 1/2	S. Roman Gravels. 10s. & 12s. 6d.
Great Laxey. 19 1/2 & 20	Tankerville. 8 & 9
Last Chance. 7 1/2 & 10	Tincroft. 20 & 21
Ladywell. 1 & 1 1/2	Van. 36 & 38
Mark Valley. 1 & 1 1/2	Van Consols. 1 1/2 & 2
North Laxey. 20s. & 22s.	West Ashton. 1 & 1 1/2
New Querbrada. 3 1/2 & 4	West Chiverton. 18 & 19
New Zealand Kapanga. 3 1/2 & 4	Wheat Crebior. 24 & 25
Parys Mountain. 9s. & 11s.	Wh. Grenville. 34 & 34 1/2

M. R. JAMES STOCKER, STOCK AND SHARE BROKER,
2, CROWN COURT, THREADNEEDLE STREET, LONDON, E.C.
(Established 1848.)

BUSINESS transacted in all kinds of STOCK EXCHANGE SECURITIES,
also in every description of BRITISH and FOREIGN MINING, COLLIERY,
MANUFACTURING, and other SHARES.

SPECIAL BUSINESS in the following:—

East Van. 28 1/2.	North Laxey. 20s. 9d.	Glyn, 4d.
Ledhills. 26 1/2.	Rookhope. 21s.	Llanrwst. 22 1/2.
Van. 28 1/2.	Richmond. 27 1/2.	Combmarin.
20 Gold Run.	20 Rookhope. 22s. 6d.	Glynroy. 32s. 6d.
30 Kapanga. 24 1/2.	20 Rookhope. 22s. 6d.	Aberdulau. 12s.
50 Last Chance. 21s. 6d.	20 Rookhope. 22s. 6d.	Tan-y-Bwlch.
50 Marke Valley. 22s. 9d.	20 Rookhope. 22s. 6d.	Goren. 10s.
20 Leadhills. 28s. 9d.	20 Rookhope. 22s. 6d.	Marke Valley. 23s. 9d.
20 Tankerville. 28s. 9d.	20 Rookhope. 22s. 6d.	Great West Van. 9s. 6d.
5 Van. 23 1/2.	20 Rookhope. 22s. 6d.	So. Prince Patrick. 37s. 6d.
40 Van Consols. 40s. 6d.	20 Rookhope. 22s. 6d.	W. Tankerville. 37s. 6d.
10 Wheal Agar.	20 Rookhope. 22s. 6d.	West Godolphin.
25 W. Tankerville. 39s. 6d.	20 Rookhope. 22s. 6d.	
10 Wye Valley. 26 1/2.	20 Rookhope. 22s. 6d.	
20 West Condurrow.	20 Rookhope. 22s. 6d.	
20 Wheal Crebior.	20 Rookhope. 22s. 6d.	
20 Wheal Grenville.	20 Rookhope. 22s. 6d.	
20 Wheal Pateley.	20 Rookhope. 22s. 6d.	
20 Wheal Uny.	20 Rookhope. 22s. 6d.	
20 Wheal Agar.	20 Rookhope. 22s. 6d.	
20 Wheal Crebior.	20 Rookhope. 22s. 6d.	
20 Wheal Agar.	20 Rookhope. 22s. 6d.	
20 Wheal Agar.	20 Rookhope. 22s. 6d.	
20 Wheal Agar.	20 Rookhope. 22s. 6d.	
20 Wheal Agar.	20 Rookhope. 22s. 6d.	
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Royal School of Mines.

THE CHEMISTRY OF COAL—No. VI.

[BY OUR SPECIAL REPORTER.]

In the sixth and concluding lecture of the course Dr. FRANKLAND first recapitulated briefly the main features of the manufacture of coal gas, as described in the preceding lecture. He then referred to the properties of the diluting gases, hydrogen, carbonic oxide, and marsh gas (or fire-damp), which are present in large quantities in the gas, but contribute nothing to the luminosity of the flame. The following facts enable us to compare these gases one with another, so as to determine which is the least harmless; the greater the quantity of heat evolved in combustion, and of carbonic acid generated, the more objectionable the gas. Of hydrogen, 1 cubic foot measured at 60° Fahr. and 30° barometric pressure, consumes $\frac{1}{2}$ cubic foot of oxygen, generates no carbonic acid, and heats 1 lb. 13 ozs. of water from 32° to 212° Fahr., or 2500 cubic feet of air from 60° to 66.4° Fahr. Of carbonic oxide, 1 cubic foot consumes $\frac{1}{2}$ cubic foot of oxygen, generates 1 cubic foot of carbonic acid, and heats 1 lb. 14 ozs. of water from 32° Fahr. to 212° Fahr., or 2500 cubic feet of air from 60° to 66.6° Fahr. Of marsh gas, 1 cubic foot consumes 2 cubic feet of oxygen, generates 1 cubic foot of carbonic acid, and heats 5 lbs. 14 ozs. of water from 32° to 212° Fahr., or 2500 cubic feet of air, from 60° to 80.8° Fahr. It is obvious, therefore, that hydrogen is the least and marsh gas the most objectionable ingredient as a diluent. In 5 cubic feet of London gas there are usually about $\frac{1}{2}$ cubic feet of hydrogen and 2 cubic feet of marsh gas. As to the source of luminosity in flames, it was due to the presence of heavy vapours, and that the light from ignited gases increased with increase of density. A great deal depends on the mode in which the gas is burnt. At first it was burnt in a simple tubular jet, which is the worst way in which gas can be burnt to give a good luminous effect. This is due to the fact that the gas rushes out with great velocity, and therefore the luminous vapours remain for a short time only in the flame; and, moreover, the gas as it issues mixes with a large quantity of air, which enables these vapours to burn inside the flame, where they add nothing to the luminosity. One of the greatest improvements ever made in the burning of gas was made by a Manchester gentleman, whose very name is now forgotten, when he allowed two of these jets to impinge against each other, by which means the velocity is greatly checked and the light wonderfully increased. This is the principle of the fish-tail burner, the most common burner in the country, which has two holes bored in it in such directions that the jets of gas impinge on each other. In the Argand burner there are a number of jets arranged in a circle, and air is supplied to the inside and outside; unless, however, the consumer is something of a philosopher, and pays attention to the proper regulation of the supply of air, he will burn much gas to waste. The Argand was further improved by Mr. Leslie, who also introduced chimneys of various lengths, by means of which the nature of the flame could be regulated according to the requirements of the consumer. As a rule the improvements in the burning of gas consists mainly in checking the velocity, so as to allow the luminiferous gases to remain longer in the flame. For a long time no one thought of further checking the velocity in the fish-tail burner, till Mr. Scholl hit on the project of introducing into the flame a small piece of platinum—called a “luminifer”—upon which the jets impinged, and by this means the luminosity is increased. The bat’s-wing burner is also very common; the orifice in this consists in a fine slit, and since this is more liable to get stopped up than the holes in the fish-tail burner, and for other reasons, on the whole the fish-tail is superior to the bat’s wing. Out of coal and oily matters we now extract paraffin oil, which is of great utility as a light-giving material; it is identical with petroleum, which is in fact, produced by a natural distillation of coal. In this small lamp, which only costs about 7d. complete, we are getting for the cost of one candle a beautiful white light, equal to that of five or six candles. Also there is extracted the beautiful white solid paraffin, of which candles are made. The great advantage of these materials is that they contain no diluting substance, all their constituents—carbon and hydrogen—are useful for luminous effects. Moreover, for the same amount of light they heat the air far less, and vibrate it to a much smaller extent than does coal gas. Owing to these and other substances obtained from it, coal tar instead of being regarded as a nuisance and worthless, as it formerly was, is now a very formidable rival in value to the coal gas itself. The great cheapness of coal gas and paraffin oil over the old sources of light may be seen from the following comparison of cost of the light of 20 sperm candles, each burning for 10 hours at the rate of 120 grs. per lb.:—Wax, 7s. 2d.; spermaceti, 6s. 8d.; tallow, 2s. 8d.; sperm oil, 1s. 10d.; coal gas, 4d.; candle gas, 3d.; paraffin (as candles), 3s. 11d.; paraffin oil, 3d.; rock oil, 3d.

The coal tar has been investigated chemically, and its constituents have been taken apart; altogether at least 50 different things have been extracted from that black material. From some of these the now well-known coal tar dyes are made. The four most important for this purpose are benzol, phenyl-alcohol, anthracene, and alizarine. The most important of these is, perhaps, anthracene; although it was the last to be discovered, and in the last three years it has effected a complete revolution in the dyeing trade. It is obtained in the distillation of coal tar as a solid substance, which is filtered out by means of coca-nut matting, or some such material. It yields a dye which is identical with that yielded by the madder root, so that now we can manufacture from our own resources a sufficiency of this dye material, whereas before we were dependent on imported madder from Turkey, Holland, and France.

The dye is known as alizarine, and is used for dyeing calico, and also woolen and silks, the former requiring a much longer space of time than the latter. In dyeing calico a fixing material, or “mordant,” has to be applied, the two principal mordants employed being oxide of iron and alumina. The colour produced varies according to the mordant employed, and it is this great variation of colours which can thus be obtained in one and the same bath which renders alizarine so very valuable as a dyeing agent. Thus, with alumina you get a scarlet or light pink, with iron you get a purple, with a mixture of alumina and iron you get a chocolate, while if you use much of the iron you get a purple so intense as to appear almost black—all these are perfectly “fast” colours.

The colours used for wool and silk are derived principally from that compound called benzol, which consists of carbon and hydrogen. By acting on benzol with nitric acid you get nitro-benzol, and by further treatment the latter yields aniline. This aniline requires to be brought in contact with an oxidising agent to produce colour. A single drop of aniline in a jar of water containing chloride of lime produces an intense colouration. This colour, however, is fugitive, and was long known, but it was not till Mr. Perkin thought of oxidising by means of bi-chromate of potash that a permanent colour was obtained, and to this colour the term mauve is commonly given. Magenta was discovered soon after mauve, and its manufacture has been brought to great perfection, especially in this country. It can be made by a number of different processes, but it is now made from the aniline almost exclusively by the action of arsenic acid. It can very readily be produced by heating aniline with corrosive sublimate. The manufacture of these colours from our native coal has made us rather colour exporting than importing people; and, as regards alizarine, we are now entirely independent of vegetation, and a good deal of indigo is also now produced in a similar way.

When aniline purple was first prepared it was for a length of time sold at seven times the price of pure silver. A cake of it 60 ozs. in weight will dye of a deep tint 1428 lbs. of wool or silk, equal to the wool obtained from 250 sheep. From 30 cwt. of coal 365 lbs. of tar are obtained, which furnishes 18 lbs. of naphtha, containing 6 lbs. of benzol; from this 6 lbs. of benzol (the starting point of mauve and magenta) 5 lbs. of aniline are produced, from which, again, 1 lb. of mauve or magenta can be obtained, sufficient to dye 560 lbs. of silk, or 900 lbs. of wool. In other words, 4 lbs. of coal will yield enough benzol (aniline itself is present in coal tar, but in too small quanti-

ties to be practically separated) to produce magenta sufficient to dye 1 lb. of wool. [The lecture was abundantly and beautifully illustrated by actual dyeing processes, &c., as well as by numerous dyed articles.]

The lecturer then concluded by remarking that we had rapidly travelled through the history of coal; we had seen it start into existence in early ages through the sun’s force; buried in the earth its tremendous powers lay dormant, till in the present day we have taken it from its prison and made it yield up its force. Treated in one way it shows itself as light, in another way as heat, in a third as mechanical force, and in a fourth as colour; and he thought his audience would endorse his opening statement that coal was one of the most remarkable substances in nature. A most enthusiastic vote of thanks to the lecturer closed the proceedings.

* * LECTURES FOR PRACTICAL MINERS.—Immediately on the completion of the reports of the Mining School Lectures, a series of careful reports, specially prepared for the *Mining Journal*, from Notes taken by Mr. J. CLARK JEFFERSON, A.R.S.M., Whitworth Scholar, and formerly Student of the Clausthal Mining School, of the Lectures there delivered, will be given. The series are very complete, and will be highly valuable for the sound technical matter which they contain.

GEOLOGICAL SOCIETY OF LONDON.

Jan. 10: Prof. P. MARTIN DUNCAN, M.B., F.R.S. (President), in the chair.

Frederick Tendron, Kidbrook-terrace, Blackheath, and David Thomas, Glynnarfon House, Rhymney, were elected Fellows, and Dr. J. F. Brandt, of St. Petersburg; Dr. C. W. Gumbel, of Munich; and Prof. Eduard Suess, of Vienna, foreign members of the society.—James Durham, Wingate-place, Newport, Fife; Herbert William Harrison, Forrester Cottage, Derby; William Hutchinson, Temple-street, Wolverhampton; H. M. Klaassen, Chepstow-road, Croydon; Alfred G. Lock, C.E., of Roselands, Millbrook, Southampton, and Mostyn-road, Brixton; Graeme Ogilvie, B.A., Sizewell House, Leiston, Suffolk; Joseph William Spencer, B.A.Sc., mining engineer, Montreal, Canada; and Griffin W. Vyse, B.A., Assoc. Inst. C.E., Executive Engineer, Public Works Department, Government of India, Multan, Punjab, were proposed as Fellows of the society.—George Barrow, of Her Majesty’s Geological Survey of England and Wales, Jermyn-street; William Heerlein Lindley, civil engineer, Frankfort-on-the-Main; and Joseph Samuel Martin, one of Her Majesty’s Inspectors of Mines, Park Villas, Prestwich, Manchester, will be balloted for as Fellows of the Society.—A special general meeting was held, at which Mr. R. Etheridge, F.R.S., was elected Vice-President, in the room of Mr. J. W. Hulke, F.R.S.

1.—“On Gigantic Land Tortoises and Small Freshwater Species from the Ossiferous Caverns of Malta, together with a list of the Fossil Fauna, and a note on Chelonian Remains from the Rock Cavities of Gibraltar.” By A. Leith Adams, M.B., F.R.S., F.G.S., Professor of Zoology in the Royal College of Science, Dublin.

2.—“On the Corallian Rocks of England.” By the Rev. J. F. Blake, M.A., F.G.S., and W. H. Hudleston, M.A., F.G.S.

THE MINERAL AND INDUSTRIAL PROGRESS OF NEW SOUTH WALES.

Few subjects can be more interesting to the true Englishmen than the record of uninterrupted successes in connection with the progressive development of a British colony, and when the history is so written as to show that the healthy progress made has been largely assisted by the natural resources of the region in which the colony has been planted, the publication of the facts is likely to prove as advantageous to the colonists as it is interesting to their friends and fellow subjects in the Mother Country. In connection with the steps taken by the Australian colonies to have their products represented at the recent Centennial Exhibition, a careful and exhaustive essay* was prepared by Mr. G. H. Reid, and has now been issued as a handsome volume. He regards the Centennial as one of the signs of the times. For the first time a great commonwealth, in seeking to commemorate the achievements of her arms, has risen above local feelings and bitter memories, inviting all nations to a congress of the arts of peace, and her former opponent has been foremost in promoting the success of the undertaking. The cordial way in which Great Britain has united with America in a jubilee over the events of 1776 is, let us hope, the initial of a new and bright page of history. It is, he continues, especially pleasing to Australians, whose loyalty to the one admits of fraternal regard for the other, and the harmony which has prevailed in the “city of brotherly love” between the assembled representatives of all communities speaking the English language encourages the idea of an alliance that would consolidate the power of the Anglo-Saxon race, and at the same time diffuse more freely amongst mankind the benefits of its vigorous civilisation.

In claiming for Australia a progress eclipsing previous examples, Mr. Reid certainly does not claim too much. Not three generations ago its coast of nearly 8000 miles was the frontier of a barbarism that had never been disturbed by a settlement of the white man. Within 40 years the colony is, with the concurrence of the Imperial Government, has fringed the Australian continent with infant States already able to exercise the powers of elaborate political systems, and subsuming over their vast territories forms of government which blend the freest principles of the American with the most venerable safeguards of the British Constitution. If proofs of material progress are demanded, the Australian can point to a population which rose in 30 years from 214,000 to 2,000,000 souls, or 834 per cent., whilst during the same period the population of Canada and the United States increased by 630 and 126 per cent. They can point to a trade which rose in the same generation from less than 6,000,000, to 83,000,000, or 950 per cent., whilst the wonderful increase in British trade was only 400 per cent. of that of the United States 335 per cent., and that of Canada about 650 per cent.; and if told Australian progress has seen its best days, they can reply that the trade of Australasia rose from 63,000,000, in 1871 to 87,000,000, in 1874, an increase of 38 per cent. in three years. The annual revenues of the several Governments approach 14,000,000£; and as showing the importance of the Australian trade to the English people, Mr. Reid mentions that the value of the exports from the United Kingdom to Australasian ports in 1851 was 2,807,358£, and in 1871 it was 10,051,982£; in other words, the Australian markets for British industry and commerce have been enlarged in 20 years by over 250 per cent. These facts, he says, will do more to convince timid vestrymen in England of the real and prospective value of the Colonial Empire than an eulogy of the British school, capacity, and enterprise to which they owe it. Until 1851 the now great Colony of Victoria formed part of New South Wales and Queensland, another splendid province was detached in 1859, yet New South Wales is still of ample dimensions, as it covers a superficial area of 323,437 square miles; that is to say, it is still as extensive as the German Empire and Italy combined, or as France and the United Kingdom.

Admirable in pastoral and varied in agricultural resources New South Wales also possesses a world of mineral wealth, which assures to her a great industrial future, but as the mineral resources of the Colony are kept so constantly before the readers of the *Mining Journal* a brief reference to them here will suffice.

Nothing Mr. Reid remarks could better show the richness of our mineral resources than the multitude of discoveries made by unscientific persons, and in New South Wales the range of industry above ground is so wide, and its rewards so easily obtained, that it is not surprising that the mines have not yet reached far into the dark bowels of the earth.

The first annual report of the Department of Mines shows that the average yield of gold per ton of quartz crushed in New South Wales during the year 1875 was 1 oz. 4 dwt. 4 lbs., and it estimated that nearly 22 per cent. of the gold is carried off in the waste, owing to the absence of the necessary machinery for treating tailings. Coal is the most abundant of our minerals. For hundred of miles the coast districts may be said to be one vast coalfield. The upper coal measures contain no less than 6 seams near to one another, the leading coal of the Colony. The seam worked there at present is from 9 to 10 feet thick, and in the western district the same measures contain at least 11 seams, the lowest of which 10 feet thick crops out near the railway line. The presence of payable deposits of tin was long ago predicted by the Rev. W. B. Clarke, but not until two or three years ago did the search for tin become a business. The value of the tin raised in New South Wales was 47,700£. In 1872, increasing to 334,456£. In 1873, to 484,322£. In 1874, and to 561,311£. In 1875, the returns for 1876 are, of course, not yet available. The New South Wales iron manufacture by the Fitzroy Company is acknowledged to be equal to the best English, and that produced by the Fitzroy Company has likewise been tested and declared to stand favourable comparison with the best ever imported. Kerosene shale is plentifully distributed. The known area of this mineral is 660 square miles, and there are three miles already at work. Of silver, 28,123 ozs. were obtained in 1874, which is equal to nearly two-thirds the production of Great Britain. Antimony is met with in various localities. In 1875 the production was 142 tons of regnium, valued at 5,000£. Cinnabar has been found near Ryolite, fire-clays exist in the coalfields, and limestone is frequent in the older geological areas. The gems of New South Wales form a varied collection. The most prominent are diamonds, found over an area of 500 square miles; oriental rubies, emeralds, topazes, and sapphires, besides common and less valuable kinds.

Throughout the essay evidence is given of an enormous amount of labour and research having been brought to bear upon it, and the value of the information collected is almost inestimable. It will enable anyone interested to satisfy himself upon any given point connected with the progress of the Colony, and will be exceedingly useful to capitalists in showing them that there is in New South Wales a vast field for enterprise, and at the same time affording

* “An Essay on New South Wales, the Mother Colony of the Australias.” By G. H. REID, Hon. Member of the Cooden Club. Sydney: T. Richards, Government Printer. London and New York: Trübner and Co.

them some guide as to what class of business is likely to prove most remunerative.

PORTABLE STEAM-ENGINES.

A useful and interesting treatise on the portable steam-engine has just been written by Mr. John Head, with a view of giving to tending purchasers some more detailed and scientific information than that furnished in trade catalogues, and there can be no doubt that after carefully reading the book the non-professional man will be in a much better position to judge as to whether a given engine is or is not adapted to the particular purpose for which he may require it. The author very naturally remarks that having, as parts in the firm of Ransomes, Sims, and Head, best for many years extensively occupied in the production of portable steam-engines, the experience gained of the requirements of persons about to purchase has led him to believe that a description of this useful class of machinery, and an explanation of the general construction in rather more technical form than has hitherto been attempted might be serviceable at home and abroad.

With regard to the more extended application of steam-engines with locomotive boilers, Mr. Head explains that since the introduction of railways—which have not only necessitated a large demand for steam power in their construction but have opened up many districts which, within the last 30 years, had been almost inaccessible for heavy pieces of machinery—the demand for steam power which can be readily made and transported from place to place has increased to a great extent. Hence the attention of manufacturers was turned to the construction of a light cheap engine, mounted on four wheels, which has received the name of the “Portable Engine,” in contradistinction to the fixed engine with separate boiler, which, though similar in details, cannot be easily moved, and requires foundations in masonry before the boiler and engine can be set to work. The locality where a steam-engine is fixed must always exercise an important influence in the calculations of users of steam-power. In largely populated districts, of all sorts can be brought by rail or canal, and stored in the immediate vicinity, and although wood and coal always find a permanent market in these localities yet the price of both fluctuates in proportion to the demand, and their price is always much higher when purchased in the forest or at the pit’s mouth. It is, therefore, necessary that the steam-engine, for use in towns and other places where fuel is expensive, should be constructed so as to consume the minimum of fuel, even at an enhanced prime cost.

But the class of engine to which Mr. Head directs especial attention is that utilising as fuel almost any description of refuse that may be indigenous to locality, and easily procured at a moderate cost. As the use of steam-power tends to outlying districts where wood was scarce and expensive, and coal obtainable as a luxury, it became necessary to devise a method of heating boiler with other fuel and vegetable substances found universally in every country. Head, in conjunction with Mr. Schemith, a Russian engineer, made a number of experiments on the combustion of straw and other vegetable products in tubular boilers, which have successfully resulted in the perfection of a steam-boiler which will enable every user of steam-power to burn straw, dry grass, brushwood, stalks, and other similar substances. For the last 15 to 20 years the portable semi-fixed steam-engine has been used in many parts of the world for thrashing, grinding, sawing, pumping, and many other purposes; but in all districts at a distance from rail or water carriage, or where coal and wood were not found in quantity in the locality, the cost of fuel has always formed a serious item, and in most cases has prevented the employment of steam-power altogether.

The absence of fine wood, and heavy cost of coal on the Steppes of Hungary and South Russia appears to have almost excluded the use of steam in those districts for Mr. Head remarks that until the application of straw and other vegetable substances as fuel became known the only substance which could be burnt in steam-boilers was dried sheep’s dung. The want of steam power is equally felt in other agricultural districts besides those already mentioned. In India the date fibres of plantains, the scrub or brushwood, and the stalks of the cotton plant supply an excellent substitute for coal in boilers properly constructed. In Egypt the cotton stalks are pulled up after having attained a certain growth, and the stalks, which are about 15 in. in diameter and 4 to 5 ft. in length, contain all the calorific properties of good wood, and will burn perfectly well if properly inserted into the furnace. In the large wheat growing districts of the Maremma and the Puglia, the west and south of Italy, wood and coal are very scarce, and as the grain requires to be threshed very shortly after harvest, on account of the nature of the climate, the farmer would gladly avail himself of steam-power provided he can use his straw, which he has always at hand and in superfluous abundance. In South America, New Zealand, and the extensive prairies of the River Plate, Chile and Mexico, the universal demand of the farmers is for steam machinery which can be worked with indigenous fuel; and the time may come ere long when land in these countries shall be ploughed, the crops harvested and threshed, in the grain ground into flour by steam-engines fed with the straw, brushwood, and vegetable refuse grown on the estate. But the great recommendation of Messrs. Head and Schemith’s engine appears to be that with slight changes in the arrangement of the fire-bars they will burn, not only coal, wood, and the various vegetable substances already enumerated, but also peat of all kinds, sawdust, chaff and meagre, the refuse of the sugarcane, and in fact almost any vegetable refuse within reach. It has been proved by experiment that from 3 to 3.50 lbs. of straw, brushwood, or cotton stalks equal 1 lb. of coal in calorific effect, and it follows that in countries where coal is cheap and straw valuable it is not always advantageous to make use of vegetable fuel. In other districts, however, where coal is about 3/- per ton, and wood is scarce and expensive, but where vegetable refuse is almost valueless, the gain to the user of steam power by adopting this invention is very great. There can be no question that the adoption of this class of engine would permit of the introduction of steam-power in almost innumerable localities from which it has hitherto been excluded, and as all the fittings attached to it are of the best and most approved form it may be hoped that its use will widely extend.

* “A Few Notes on the Portable Steam-Engine, with an Account of its Construction and General Adaptation.” By JOHN HEAD, A.I.C.E. (Ransomes, Sims and Head). London: Spon, Charing Cross.

MECHANICAL THEORY OF HEAT.—The special value of the “Treatise on the Mechanical Theory of Heat, and its Applications to the Steam-Engine,” &c., by Prof. R. S. McCULLOCH, of the Washington and Lee University (recently published by Mr. D. Van Nostrand, of New York), has been said by competent authorities to lie in its peculiar adaptability to the needs of the scientific student. It is a systematic development of the science of thermo-dynamics from the fundamental equation of energy. The first chapter gives a brief, but admirably clear, history of the science. The next three chapters are devoted to a masterly resume of theoretical dynamics, which will be found of the greatest service, even to those who have familiarised themselves with the subject in more extended works. The remaining chapters of the first part are devoted to general laws, airs and vapours, internal energy, air-engines, and thermal laws. Under these various heads the principles of the science of dynamics are developed in a most thorough and systematic manner. The second part of the work is a discussion of the application of thermal laws. The two principal chapters treat of “Steam and other Vapours,” and “Steam Engines: their Defects and Improvement”; and in the treatment of this part the Professor displays the same power of analysis as in the purely scientific portion. The work will be more fully referred to in a future Journal.

COATING METALS.—In the process of coating iron or other metals sheets with tin or other metal Mr. E. MOREWOOD, of Llanelli, employs what he calls a half-round finishing flux pot with machinery and apparatus so fitted that plates which have been coated with melted metal after being prepared by tallow, oil, or grease flux may be finished, improved, or rectified whilst making a somewhat semi-circular travel under the hot grease, tallow or oil contained therein by passing between rollers coated with melted metal. At the bottom of this finishing flux pot is an opening by which any molten metal or scuff, or dirt, or settling from the grease descend from the said finishing flux pot into a receptacle which is set below, so that the rollers, some of which work near the bottom of the finishing flux pot, may, whilst revolving be as far as possible out of the way of disturbing dirt, scuff, or settling, or of planting any on the plates which pass between them, and from the receptacle the metal, grease, and dirt can be readily removed. On the exit side of this finishing flux pot or vessel he causes the plates to pass up between two rollers working in troughs containing melted metal, so that they may be supplied with fresh coating metal whilst passing between the rollers which revolve in contact with the coating metal contained in such troughs, or such troughs may contain fresh tallow, oil

THE DIVIDEND MINES OF 1876.

CONTRIBUTED BY MR. EDWARD ASHMEAD, LONDON MINE AGENT AND ACCOUNTANT, 62, CORNHILL, LONDON.

PARTICULARS OF THE BRITISH METALLIFEROUS MINES WORKED BY PUBLIC COMPANIES WHICH HAVE PAID DIVIDENDS IN THE YEAR 1876.

Title of Mining Company.	Situation of Mine.	Year Company commenced.	Ore sold in 1876.			Rate of dues.	Existing allotted Capital.			Total amount divided in dividends.	Dividends declared in 1876.	
			Description of ore.	Number of tons.	Amount.		Shares.	Paid.	Total.		Per share.	Total.
1. Alderley Edge, Limited	Alderley Edge, Cheshire	1850	Copper	—	£ s. d.	1-10th	1,500	£ 0 0 0	15,000 0 0	£ 18,875	£ 0 5 0	£ 375 0 0
2. Bryn Alyn, Limited	Denbighshire	1875	Lead...	14	210 0 0	£1 per ton	500	10 0 0	5,000 0 0	198	0 7 0	* 198 2 0
3. Dolcoath, Cost-book	Camborne, Cornwall	1799	Copper	39	157 9 6	1-20th	4,296	10 10 8	45,252 2 10	475,510	1 12 6	6,981 0 0
4. East Darren, Limited	Cardiganshire	1858	Arsenic	56	230 19 10	1-14th	300	32 0 0	9,600 0 0	70,650	4 0 0	1,200 0 0
5. East Pool, Cost-book	Illogan, Cornwall	—	Lead...	460	8,504 0 0	—	6,400	0 9 9	3,120 0 0	95,440	0 15 6	4,960 0 0
6. Glasgow Caradon Consolidated, Lim.	Cornwall	1860	Copper	1876	5,725 12 0	—	29,980	1 0 0	29,980 0 0	22,989	0 3 0	5,374 3 3
7. Great Dylife Lead, Limited	Montgomery	1876	Lead...	970	14,431 15 0	1-14th	15,000	4 0 0	60,000 0 0	1,875	0 2 6	1,875 0 0
8. Great Laxey, Limited	Laxey Glen, Isle of Man	1863	Copper	36	245 4 4	1-20th	15,000	4 0 0	60,000 0 0	309,750	2 0 0	30,000 0 0
9. Great Retallack, Cost-book	Perranzabuloe, Cornwall	—	Copper	120	483 0 0	1-20th	—	—	—	—	—	—
10. Grogwinion Lead, Limited...	Cardiganshire	1872	Lead...	2400	56,047 10 0	1-8th	15,000	4 0 0	60,000 0 0	309,750	2 0 0	30,000 0 0
11. Gunnislake, Cost-book...	Calstock, Cornwall	1858	Copper	7299	25,668 0 0	1-20th	—	—	—	—	—	—
12. Isle of Man, Limited...	Foxdale, Isle of Man	1856	Lead...	689	1,972 0 0	1-15th	615	5 18 6	3,843 17 6	—	0 1 6	43 2 6
13. Lisburne, Limited...	Cardiganshire	1834	Lead...	1080	16,103 15 8	1-15th	18,000	2 0 0	36,000 0 0	7,200	0 5 0	4,500 0 0
14. Marke Valley, Cost-book	Linkinhorne, Cornwall	1839	Copper	1781	10,364 0 0	1-20th	9,830	2 2 0	20,643 0 0	6,758	0 5 0	2,457 10 0
15. Minera, Limited	Near Wrexham, Denbighshire	1850	Lead...	1593	34,873 1 6	1-12th	2,800	25 0 0	70,000 0 0	102,144	1 5 0	3,500 0 0
16. North Hendre Lead, Limited	Near Mold, Flint	1870	Copper	207	3,118 0 0	15s. per ton	18,000	1 0 0	18,000 0 0	11,693	0 1 3	1,125 0 0
17. Prince Patrick Lead, Limited	Halkin, Flint	1872	Lead...	2321	34,869 6 0	1-12th	12,000	7 10 0	90,000 0 0	79,800	1 5 6	15,300 0 0
18. Roman Gravels, Limited	Near Minsterley, Shropshire.	1870	Copper	40	130 0 0	1-12th	—	—	—	—	—	—
19. South Caradon, Cost-book	St. Cleer, Cornwall	1835	Copper	6261	43,110 19 2	1-18th	512	1 5 0	640 0 0	374,272	7 0 0	3,584 0 0
20. South Condurrow, Cost-book	Camborne, Cornwall	1865	Tin	588	26,562 15 6	1-24th	6,123	6 5 6	38,421 16 6	12,856	0 9 6	2,908 8 6
21. Tankerville, Limited	Near Minsterley, Shropshire.	1870	Lead...	1500	22,617 10 0	£1 per ton	12,000	6 0 0	72,000 0 0	58,200	1 0 0	12,000 0 0
22. Tincroft, Cost-book	Redruth, Cornwall	1836	Tin	794	33,936 12 5	1-26th	6,000	9 0 0	54,000 0 0	258,000	1 0 0	6,000 0 0
23. Van, Limited...	Montgomery	1869	Lead...	6850	102,905 0 0	1-14th	15,000	4 5 0	63,750 0 0	308,625	3 6 0	49,500 0 0
24. West Chiverton, Cost-book...	Near Truro, Cornwall	1863	Blende	2460	9,638 7 6	1-14th	—	—	—	—	—	—
25. West Poldice...	Gwennap, Cornwall	1873	Lead...	1645	20,545 9 5	1-20th	3,000	12 10 0	37,500 0 0	163,500	1 0 0	3,000 0 0
26. West Wheal Tolgas, Cost-book	Illogan, Cornwall	1860	Copper	3330	9,898 9 10	—	—	—	—	—	—	—
27. West Wye Valley Lead, Limited	Montgomery	1875	Lead...	155	6,766 7 2	1-20th	1,730	0 12 0	1,038 0 0	878	0 10 0	878 5 0
28. Wheal Eliza Consols, Cost-book...	St. Austell, Cornwall	1861	Copper	326	2,033 16 3	1-20th	512	95 10 0	48,896 0 0	9,088	6 15 0	3,456 0 0
29. Wye Valley Lead, Limited ..	Montgomery	1874	Tin	3641	21,032 11 2	1-16th	12,000	3 0 0	36,000 0 0	3,048	0 6 0	3,048 11 6
			Lead...	445	20,392 6 7	1-20th	1,024	18 0 0	18,432 0 0	8,704	7 10 0	7,680 0 0
			Copper	500	7,148 0 0	1-16th	10,000	3 0 0	30,000 0 0	3,413	0 4 6	2,250 0 0
			Blende	40	50 0 0	—	—	—	—	—	—	—
					£720,431 4 1				£991,204 6 10	£3,320,913		£191,469 7 9

* On 566 shares.

† East Pool tin returns not yet to hand.

‡ Great Laxey blende is from August, 1875, to August, 1876.

§ Registered as a Limited Company in 1864.

|| 5s. on 1783 shares, and 5s. on 1730 shares.

** Guaranteed dividend not paid on all the shares.

In 1876, 17 Lead and Blende Mines paid ...	£145,915 1 0
and 12 Tin and Copper Mines	45,554 6 9
Total	£191,469 7 9
Dividend paid in 1876 by 29 companies	£191,469 7 9
" 1875 " 34 " ...	157,480 12 2
Increase for 1876...	£ 33,988 15 7

RESERVE FUNDS.—Two of the above companies have reserve funds—viz., Minera, £9000, and Great Laxey, £5600.

The ores sold by the above companies averaged—	
Lead, 25,235 tons, about £16 2 6 per ton	£406,023 12 1
Blende, 15,980 "	3 13 6
Tin, 3,162 "	44 10 0
Copper, 21,767 "	5 6 0
Sundries ...	230 19 10

Total £720,431 4 1

PARTICULARS OF THE FOREIGN AND METALLIFEROUS MINES WORKED BY BRITISH PUBLIC COMPANIES WHICH HAVE PAID DIVIDENDS IN THE YEAR 1876.

Title of Mining Company.	Situation of Mine.	Year Company commenced.	Ores worked for.	Existing allotted Capital.			Debentures.	Reserve Fund.	Total amount divided in dividends.	Dividends declared in 1876.	
				Shares.	Paid.	Total.				Per share.	Total.
1. Alamillos, Limited	Near Linares, Spain	1863	Lead	35,000	2 0 0	70,000	—	4,086	63,437	0 4 0	7,000 0 0
2. Almada and Trito Consolidated, Lim.	Promotorio, Sonora, Mexico	1870	Silver	130,000	1 0 0	130,000	10,600	1,488	36,208	0 1 0	6,500 0 0
3. Cape Copper, Limited...	400 miles N. W. of Cape Town	1863	Copper	20,000	7 0 0	140,000	—	20,000	505,625	4 0 0	80,000 0 0
4. Chicago Silver, Limited	Utah Territory, United States	1873	Silver and Lead	13,225	10 0 0	132,250	—				

Original Correspondence.

RICHMOND MINE.

Sir.—I have before me a circular published by a firm of brokers named Mansell and Co., and headed "Notice to clients only." Not being a client of theirs I am truly grateful to Mansell and Co. for the kindly interest they take in me and my affairs, leading them to expend time, ink, paper, and stamp on me. Of course they have an object in view. I have lived a good many years in this world, and have not found the people of it, more especially stockbrokers, as a rule, disinterested, like as Messrs. Mansell and Co. would lead me to believe they are.

On receipt of the circular I made some enquiries regarding this P. W. Mansell and Co., and learned:—1. That, notwithstanding their signature, they have no *locus standi* in the Stock Exchange; indeed, the very fact of their issuing a circular such as this is sufficient evidence of this.—2. That Mr. Mansell was once on very friendly terms with the Chairman of the Richmond, but that, for reasons unnecessary to mention here, there no longer exists the same *entente cordiale* between them.—3. That in lieu of cultivating the friendship of the Chairman, Mr. Mansell allied himself with one of the greatest enemies of the Richmond—J. J. Corrigan—who, as stated in the circular, "until recently sat at the Richmond board as representative of the American Corporation" but who had no sooner become disconnected with the mine than he began fulminating all manner of deadly threats against it and all therewith connected, nor did he make any secret of his intentions, for he told persons with whom I am acquainted that his going to Eureka would result in no good to the Richmond.—4. That during his recent visit to the mines in Nevada Mr. Mansell visited the Richmond, and was rather put out when refused admittance to its depths; however, in the end Mr. Probert seems to have relented, and showed Mr. Mansell all over the workings, and at parting said to him—"Now you have seen the mine you can go home and write and say anything you like about it," or words to that effect.

Read in the light of these facts, the drift of Mr. M.'s circular is easily understood. It means injury to the mine and its shares, not philanthropy towards his dearly-loved clients. Poor souls! Moreover, anyone acquainted with the way in which the wires are being pulled in the San Francisco, Eureka, Glasgow, and London markets, is well aware of the "little game" being at present played by a certain firm of San Francisco, in concert with their Glasgow agents and certain others, both in London and the other side of the water; and instead of Mansell and Co., fully expecting that the threatened suit by the K. K. (which is perfectly baseless, and urged only for stock-jobbing purposes and with the object of annoying the Richmond Company) would have been amicably adjusted through the friendly offices of J. J. Corrigan, they must be well aware that the very reverse was to be expected.

The object of this little paragraph, which breathes of such innocence, is simply to blind those not acquainted with the game upon the board, and to lead them to believe that the "suit" must indeed be a very serious one if a friendly go-between such as J. J. Corrigan is about the very last person from whom such good service could be expected, and who has only got nominated deputy chairman to the K. K. since his return to Nevada, in order that he may damage our property as much as he possibly can, and in order that he may be a thorn in the side of his avowed enemy, Mr. Probert, and his late colleagues, the directors of the Richmond Mine.

The holders of Richmond shares may rest assured that notwithstanding all the attempts of interested parties to depreciate the value of the shares, they have a very splendid property in the Richmond, and they will only be cutting their own throats and playing the game of the "bears" and enemies of the mine if they believe the false rumours from time to time foisted upon them by tongue and by printed circulars such as the one under consideration, which could surely have been answered in a few hours, not several days by the chairman and his colleagues. A SHAREHOLDER.

[For remainder of Original Correspondence see this day's Supplement.]

WHEAL AGAR—SPECIAL REPORT.

Jan. 17.—The engine-shaft is sunk 4 fms. below the 195, at which point the men are engaged shooting down the north part, which is throwing open a magnificent lode—the width seen is about 12 ft.; no sign of any north wall. In the extreme north the lode is as valuable as seen here. The south part, for about 5 ft. wide, and length of shaft 14 ft., is worth about 42/- per fathom; the north part is 7 ft. wide, and for length of shaft is worth about 135/- per fathom downwards. The lode is made up of spar, muriatic, spots of copper ore, and tin, the matrix of which is a 1 ft. piece to see for the growth of tin in large quantities. In the 195, east of shaft, a party of men are engaged shooting down the north part of the lode, where it is seen to be white; no north wall, about 9 ft. of which, on the south part, is yielding standing work. The north part is 6 ft. wide, worth about 18/- per fathom. When convenient a level should be started east to enable you to sink a winze to follow down the shaft (say) 4 fms. east of shaft. If you adopt this course as soon as the shaft is down for another level you will be prepared to step from said winze without loss or hindrance to the shaft. I notice in the back of the said level that there are some flat ribs of muriatic making away north, and it appears that these ribs will most likely disturb the lode in going up, and give scope to practice. The north part may prove productive a few fathoms in going up—this will be proved as the ground is stopped. The lode in the upper levels, below the shale rock, on entering the granite, is split up so much that it is scarcely traceable, but as depth is attained, the granite rock becomes more congenial and settled. That the granite wears out of the vein, and gives place to spar and other matter congenial to tin, and that the outcrop of the great bunch may in the shaft will be found a little above the 195—in the present east about 16 ft. wide, composed of spar, muriatic, spots of copper ore, and tin, worth for the latter 6/- per fathom, and likely to prove productive. The stopes now working on the said lode I do not think are leaving much to the company. I recommend you to set them on tribute, when half there, to poor shaft now drawn to surface might be left underground, when I feel sure that the lode can be worked at a profit to the company. The new shaft should be pushed on by a full staff of men, in order to prepare to draw large quantities of stuff on an economical scale. Before the shaft reaches the bottom the mine will be well developed, and this shaft will, without doubt, be much required, even before you can get it prepared. A skip road is required at the engine-shaft, which should be attended to at once. The time has arrived when you can make a fair start for the mine to meet regular working expenses. You will require little more capital for skip road and laying out dressing floors. The mine at the bottom is looking splendid, and from the appearance of the lode to day I believe that you are down a rich lode that will prove lasting and highly profitable for very many years to come.—T. Hobson.

PENSTRUTHIAL CONSOLS TIN AND COPPER MINES—SPECIAL REPORT.

Jan. 17.—The position of the company's grant is so well known that detailed reference theron would be both unnecessary and superfluous, hence I proceed at once to my report which will chiefly apply to the recently discovered copper lode, and which, in my opinion, is being practically developed, and is rapidly opening out an extensive and valuable deposit of copper ore. I may, however, just observe, *a present*, that the situation of the property is unique in its favourable analogy as regards prosperous mines, and its history for riches on the only lode worked by former adventurers. Trescavean and the old and new Bullers are similarly situated as to the junction of the granite and the killas, and are each and all celebrated for their rapid and substantial development and products. These four mines are, in fact, one group, and have at various times been famous for their exceptional wealth and the profits resulting from its extraction. The ore are rich in quality, ripe in character, and are easily prepared for market, hence costs of dressing are comparatively small when compared with those of average mining. The company's soft settings in highly crystallised and mineral lodes, both for copper and tin, which traverse at various angles and form numerous intersections, and the rock is most congenial for the formation and yield of large quantities of copper ore.

The copper lode dropped into the shaft just 2 or 3 fms. under the 34 fm. level, and a considerable section of it has been laid open, both in length and depth, so much so that I cannot but congratulate the proprietor on their prospects. The veins makes both east and west of the shaft, but the great bulk of the deposit evidently abounds eastward in the direction of the cross-courses, and towards the junction of the granite and killas. The 46 fm. level has been driven east 47 fms. through a compact lode, with copper ore in considerable lengths throughout the whole distance, and even continuing in places to the 34 fm. level, thence upwards to virgin ground to the east, from which point the lode is wholly unbroken to surface. The 58 fm. level is extended east 35 fms., and the shoots of ore existing in the level above are found more compact and settled, whilst the unproductive patches are shortened, and show strong indications of disappearing altogether in the next level. A winze has been sunk in continuous ore from the 46 to the 58, which is important in respect to ventilation, facility of working, and proving the value and character of the vein. This piece of ground, for 20 fms. in height and for 40 fms. in length, is now available for stonings or tribute, and is being worked at an average of 6s. 8d. in it, and contains large quantities of rich copper ore, black and grey pre-decopper, which show that the top only of the deposit is as yet worked.

A winze is started below the 58, and in advance of the 74 end east; the lode here is worth (say) 25/- per fathom for copper ore. Theshift it sunk to the 74, and ends as being driven both east and west, and it is probable that the ore now being wrought at the 46 and 78, black and grey oxides, will soon change into sulphur or yellow copper ore at the 78, or, at the latest, the next level. This is in accordance with analogy throughout the district, and in my opinion there cannot be a doubt

that this will be the case on this lode, and which alone is required to establish the Penstruthial Mine equal to the best that the district ever contained. There is a feature of great importance in the character of the lode—the absence of water in all the upper workings, thus proving the porous nature of the vein. The water springs wholly from the bottom, and the shaft has drained the whole of the mine up to the cross-course, so that tributaries are working perfectly dry. The tin ground improves also as depth is attained, but though the mineral may prove a good auxiliary, and even an important element, yet the yield of copper ore is the product that will establish the future greatness of the Penstruthial Mines. In concluding my remarks I beg to state that I have had 50 years experience in practical mining, and I have no hesitation in saying Penstruthial will prove a great and profitable mine, and that the shareholders will have an early and important prize, and I have never been more agreeably surprised throughout my long career than on my inspection of this mine. I estimate the copper ore ground laid open (say) 1200 fms., and I value it at (say) a money value of 10,000/- to 12,000/-, which can be raised at 6s. 8d. in 12. This, however, is simply a mere fraction of the prospective money value of the property, as the elements of success are all imbedded in virgin ground eastward in connection with the chief cross course of the district, and in contiguity with which Trescavean and Old and New Buller made their great riches.—JOHN LEAN.

CATHEDRAL COPPER MINE (GWENNAP)—SPECIAL REPORT.

Jan. 18.—Having on the 30th ult. visited and carefully inspected the above-named mine—with the position of which I have from my childhood been acquainted—I was highly pleased with all that you have done, and are still doing, as well as with the state and prospects of the mine. As you are aware, it is situated at the north foot of the granite hill of Carmarth, and in the centre of a rich mining district, is in close proximity to West Wheal Damsal on the south, and to Granbier and St. Aubyn on the north, both of which mines have yielded an abundance of copper ore of rich quality, the principal vein of the former having maintained an almost continuous and uninterrupted course of ore of great magnitude and to a great depth for upwards of a mile in length. Cathedral is worked on a gossan-back oxide of iron lode, which has recently undergone what we have found to be the natural, and almost invariable, change attending those of the rich copper mines of Cornwall, and which is noticed in those of the world in general—that, that the gossan has changed or given place to yellow copper ore—sulphur of copper. Above the 30 the lode seems to have yielded a considerable quantity of gossan ore—carbonate and oxide of copper, and for the length opened out it has been principally removed or worked away; but from the 30 to the 42 there has been opened out, and now standing almost entire, a piece of valuable ore ground, on which tribute pitches have, 40 fms. long and 10 fms. high in round numbers, 400 fathoms of copper ground, which is being worked at an average tribute of 8s. 6d. in 12.

The ends from the 30 downward are still in the gossan, and are of a most promising character, more particularly so that of the 42 east, which most strongly indicates an immediate improvement. The lode from the surface to the present bottom of the sump or engine shaft, and throughout the whole of the levels, maintains its width and strength, or, I should rather and more correctly say, that it increases in width with the attainment of depth. In the shaft itself it is about the width of shaft—say, 4 ft. wide—composed of peach, spar, friable and yellow copper ore, of a present value of about 20/- per fathom. The lode changed to sulphur of copper about 4 or 5 fms. above the present bottom. It is not so much my object to speak of the work done as it is to convey a general idea of the character of the lode, and of the position, present state, and prospects of the mine. From surface, then, the mine was opened on the gossan, which has undergone the regular gradation of changes found at shallow depths in the richest mines in the neighbourhood, the lode possessing all the characteristics that indicate riches below. Looking at these facts and features, it is my confident belief that we will soon have a profitable and a durable mine, in a large and strong lode of yellow copper ore. The important fact I must not forget to mention—that the lode now being developed in the mine is the same that in the adjoining mine—Old Wheal Jewell—yielded a profit of 400,000/-, and in no instance at the same depth did the lode in Old Wheal Jewell present better prospects than those of Cathedral.

JOHN LEAN.

THE IMPORTANCE OF SCIENTIFIC TRAINING.

THE UNIVERSITY OF NEW BRUNSWICK.

Opportunities almost daily present themselves for removing defects or introducing improvements in connection with every branch of industry—sometimes by modifying the processes in use, sometimes by varying the methods of manipulation commonly followed, and it is seldom without strict attention to the scientific principles involved that the necessary alterations can be either successfully or economically made. Well, then, may the authorities of the University of New Brunswick remark that "people in general fail fully to appreciate the importance of scientific method and the value of scientific training as an introduction to the life of even an ordinary man of business," and in offering inducements for the largest possible number of students to give attention to technical subjects, by providing a very complete course of scientific teaching, they have certainly entitled themselves to the warmest thanks of the entire province, whilst the ample precautions taken to prevent a degree from the University being obtained by any student until he has proved himself well entitled to it will suffice to command for the B. Sc. and Ph. D. degrees the same amount of respect as has always attached to the degrees in laws and arts. With regard to the history of the University, it has been in existence as a teaching body since 1800, although it did not receive the Royal charter which conferred upon it the style and privileges of a university until 1828, before which date it was known as the College of New Brunswick, and the most satisfactory progress has been made since its re-organisation in the year 1860. The facilities for obtaining high-class collegiate education upon easy terms are probably greater in the University of New Brunswick than in any other establishment in the Dominion of Canada, for in addition to an abundance of scholarships the cost of residing is so moderate that a County Scholarship being obtained, the frugal student can go through the full university course at a cost of only \$92.50 per annum. This small amount with the scholarships within his reach will provide him with the 40 weeks board and lodging, and the necessary text books, and suffice to cover the tuition fees, subscription to library and plate, fuel and light, washing, and gymnasium. Even those who are unsuccessful in gaining scholarships can go through the course for \$175 per annum, whilst the expenditure for dress and pocket-money need not be higher at the University than away from it. The Act establishing the University provides that there shall be in the institution one scholarship of \$60 either in the general or special undergraduate course for each county in the province—those for Carlton, Queen's, Restigouche, St. John, King's, Northumberland, Victoria, Westmorland, and York, becoming vacant during the current year—and the holders of these scholarships are exempt from all fees for instruction in the branches of study required for graduation; this represents an additional \$22.50, reducing the student's necessary expenses, as already stated, to \$92.50 per annum. What a boon it would be considered in England for a young man to be enabled to procure a collegiate education for \$35. per annum without obtaining scholarships, or for 180. with easily-gained scholarships. But the scholarships are not the only encouragements offered for matriculating in the University of New Brunswick; there are likewise 56 exhibitions—the City of St. John being entitled to six, the City of Fredericton to three, nine of the counties to three each, and the remaining five counties to four each—the gaining of one of which entitles the holder to exemption from all charges of fees for education, the sole requirement being that the candidate shall pass the required examination and produce satisfactory testimonial that he is well deserving of such gratuitous instruction. As a matter of fact it may be stated that a large number of these exhibitions are constantly vacant, so that the tuition fees can never be referred to in New Brunswick as excluding the diligent student from acquiring an academic status. Once matriculated, the gold medal and prizes annually offered are quite sufficient to keep up a healthy competition among the undergraduates, and to ensure, by that means, a large degree of efficiency by the time the period for graduation arrives.

The care taken to secure thorough training before graduation is as great at Fredericton as elsewhere in Canada, the qualification for the B.A. being that the student shall satisfactorily master the subjects laid down in the curriculum of study, shall pass the College and University examinations, and complete his three years' course, and then satisfy the examiners for degrees; two years standing as B.A., and an examination in higher mathematics and the Greek and Latin languages are demanded for M.A.; six years standing as B.A., and an examination in chemistry, natural philosophy, and natural science for the B. Sc.; whilst five years standing as B. Sc., and an examination in general physics and mental science is required for the Ph. D. Similar standing—13 years, is required for the D.C.L., and the LL.D. is strictly honorary. The standard for matriculation is not so high as in some other universities, but notice is given that it will be raised, as soon as the state of the superior schools in the province justify it, and this is really the correct principle for those connected with any university to adopt. Whenever there is the slightest shortcoming in the superior schools of the district for which a university is chartered the professors should, as they do at Fredericton, assume the responsibility of accepting the students as they find them, and educating them up to the standard required

for graduation, and it is satisfactory to find that the standard for graduation is quite as high in the Canadian universities as in any dependency of the British Crown. Every student is required to attend divine service every sabbath, but he is not compelled to attend the Church of England, as the certificate of any minister of religion in or near Fredericton is accepted by the Senate in allowing the term, and even attendance at the daily reading of the scriptures and prayers in the University is excused when the parents or guardians of the students desire it; thus irreligion is disconcerted, and the advantages of the University are offered to students of every creed.

That the science course may be of the utmost utility to the largest possible number it is judiciously divided into three departments—mathematical, natural science, and English language and literature, the syllabus in each showing that a complete explanation of all useful details connected with the several subjects is given during the course. In the mathematical department the first year's study embraces the elements of plane, solid, and descriptive geometry, and the fundamental operations of algebra; whilst in the second year plane trigonometry, the mensuration of lines, surfaces, and solids, surveying and levelling, the principles of navigation, applied spherical geometry and trigonometry, analytical geometry, optics, astronomy are taken; the third year's study embracing the more advanced portions of analytical geometry, differential and integral calculus, statics and dynamics, hydrostatics and hydrodynamics, and pneumatics, after which either of two distinct branches may be followed, according as the student may require navigation and nautical astronomy or land surveying and engineering, the instruction in each case being of a thoroughly practical character. In the natural science department the first year is occupied by chemical and molecular physics during one term, inorganic chemistry two terms, and organic chemistry one term; whilst in the second year zoology and botany are fully considered; and in the third year the first term is devoted to physical geography and meteorology, and to lithological geology, including mineralogy, the composition, nomenclature, and arrangement of rocks; during the second term historical geology, including geology and palaeontology, and the geological structure and history of Acadia is taught; and in the third term dynamical geology, including the study of the causes producing geological results—winds, waves, currents, earthquakes, volcanoes, &c.—are fully considered.

It will thus be seen that so far as the science students are concerned the instruction offered is ample to prepare them for any branch of industry to which they may propose to devote themselves when they leave the University. The studies for the English language and literature department are also arranged with much judgment, since they compel the student to get through a large amount of work, and he cannot fail to obtain a very sound acquaintance, not only with the history and structure of the language, but with the leading classical writers who have used it. Altogether, the University is an institution of which New Brunswick may well be proud.

SOUTH CROFTY.—There has been an important discovery in the 180 cross-cut. The lode has not yet been cut through, which we understand will take a few days to do. It is a very fine, and we should say, from all we hear, a rich lode as far as they have seen, about 2 ft. The men have been hindered on account of the water. A general sample has been tried, showing 21 per cent. of tin. A large portion of the stones would give 50 per cent. We must wait till the lode is proved before we can say much more. South Crofty, we are aware, is situated between East Pool and Tincroft, and this discovery now is the great East Pool lode, which mine is making all its riches in depth. There is one thing certain, that if the price of metal is higher these shares would double their present price.

COPPER ORES.

Sampled Jan. 3, and sold at Swansea, Jan. 16.

Mines.	Tons.	Produce.	Price.	Mines.	Tons.	Produce.	Price.
Botts Cove	114	9	£6 6 0	Cape Ore	47	26 1/2	£19 11 6
ditto	114	9	6 0	ditto	47	26 1/2	19 11 6
ditto	114	9	6 0	Union Ore	142	4 1/2	2 11 6
ditto	114	8 1/2	6 11 0	ditto	95	4	2 9 6
ditto	99	8 1/2	6 9 6	ditto	95	4	2 9 6
Cape Ore	74	26 1/2	19 12 6	ditto	1	6 1/2	4 8 0
ditto	74	26 1/2	19 7 0	Copper Reg.	9	37 1/2	26 10 6
ditto	74	26 1/2	19 6 6	ditto	1	35 1/2	25 1 0
ditto	74	26 1/2	19 13 0	Copper Ore.	3	13	9 1 0
ditto	74	28 1/2	19 13 6				

TOTAL PRODUCE.

Botts Cove	555	£3,542	6 6
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Mining Correspondence.

BRITISH MINES.

ABERDAUNANT.—S. Toy, Jan. 18: Deep Adit Level: In rising towards the new shaft, which is up 4 fms., we have met with a cross-head, which is discharging water freely. The ground for rising is much the same as it has been for several months past. In the east part of the set (Crown), in the cross cut driving to the south past. In the east part of the set (Crown), in the cross cut driving to the south past. There is no alteration of importance since my last advice.

ASHETON.—John Crane, Joel Manley, Jan. 18: The water in the boundary shaft is in fork, and we have resumed driving the 80 east; no lode has been taken down here since last reported on. No particular change in the 60 east since last report. The lode in the 50, east of Mawr shaft, still maintains its value—17 per fathom for lead. No change calling for remarks in any other part of the mine. The parcel of ore sold on the 16th instant realised 14.75. 7d. per ton, f.o.b. here, amounting to 431.5s.

BEDFORD UNITED.—R. Goldsworthy, W. Phillips, Jan. 18: The lode in the shaft sinking under the 127 maintains its size and value—40 per fathom, or 80' for the length of the shaft. There has been no lode taken down in the 127 east; in this level west the lode is worth 8s. per fathom. The lode in the 115 east is worth 20s. per fathom, and in the winze sinking in this level it is worth 18s. per fathom. In this level (the 115) west the lode is worth 15s. per fathom. The lode in the 103 east is producing good stones of ore; this level west is being driven by the side of the lode. The stopes are producing the usual quantity of copper ore.

BODIDRIS.—H. Hotchkiss, Jan. 17: In the 60 yard level we have completed the whole of the tram road, and are now in a position to draw through the western shaft. We have recommended the cross-cut at this level to intersect the Mayn Pwll lode, and, as the ground is soft and easy for driving, we are making good progress. We have commenced to drive the 10 east upon the main lode, with a view of coming under the rich ore ground discovered and laid open in the upper levels. The 45 yard level east has improved again for both lead and blonde. We have broken some very rich stuff here during the past month, and laid open valuable stoping ground. We have commenced a rise in the back of this level in a good lode, by which means we shall communicate with the 30, and so ventilate this section of ore ground for stoping. The 30 yard level is being driven with all speed in a most promising lode, and I think the present end is near the junction of the Main and Cragiog lodes.

BRONFLOYD.—Thos. Kemp, Jan. 18: No. 3 Shaft, North Lode: Fair progress is being made in sinking this shaft below the 110; the ground in the bottom of the shaft is composed of kilas, carrying small strings of spar, spotted with lead ore; this work is being pushed on with all speed. The part of the lode carried by the 110 end, west of winze, is worth 15 cts. of ore per fathom. I am pleased to say within the last few days the ground here has become a little more favourable for opening, consequently better progress is made. The lode in the stope to the east of winze, over this same level, is worth 20 cts. of ore per cubic fathom; the lode here is stopped sufficiently high for stull, which work will be proceeded with in the course of two or three days. In stripping down the main part of the lode from the western end of this stope towards the winze, lode worth 25 cts. of ore per cubic fathom. The lode in the stope over the 95, east of Joshua's winze, is worth from 10 to 12 cts. of ore per cubic fathom. Four men are employed in taking away an arch of ground over the 73, to the east of shaft, which is turning out some good leadstuff. The ground in Curtis's cross-cut, south from the 73 east, is not quite so favourable for opening, consequently progress is a little impeded.—No. 2 Shaft, Middle Lode: In cross-cutting the lode south, just behind the forebreast of the 52 end, west of Lloyd's cross-cut, I am sorry to say as yet we have not met with anything of importance; the lode so far as cut into it in that direction is principally kilas and spar, showing a little lead, but not to value. The lode in the 40 end west of cross-cut, going back towards the shaft, still continues to look well, and is worth 15 cts. of ore per fathom. Hauling and dressing going on regularly, and we are pushing on with our next sampling with all energy.

CARGOLL.—J. Jennings, Jan. 18: The lode in the 24, east of Bowyer's flat-rod shaft, is split in two parts by a horse of elevat; the north part I believe to be the caunter lode as seen above; the south part at present is not looking so well in the back of the level; both parts together are now worth from 35. to 40. per fathom. I consider that these two parts are of very great promise for the next level below, as towards the bottom of this level the lode is of much greater value than at the back of this level. The lode in the 24, west of shaft, is a little smaller, now worth about 8s. per fathom, and promising to improve. At Bowyer's flat rod shaft I hope to complete the cutting of the 24 plat for receiving the stuff in the course of a week, when we shall resume the sinking with all possible dispatch by eight men. There is no change in the upper levels since the account day last. Our engine is working very well, but the water is very much increased in the last few days.

CASHWELL.—John Peart, Dec. 23: The drift going east in south vein below sea limestone is better; there is a very good vein, and not so hard. The indications in the forebreast are very good, and in a little time may contain good ore again; the stuff we are at present working makes very good stuff. We have two headings working in this vein in slatey haze, and are preparing for a third; there is a good vein, and part ore in both, but in the west one there is some very good ore. In the north vein we are driving a drift east in sea limestone, and have a very soft vein with ore that will pay expenses; in taking down the heading the ore improves. In this vein in slatey haze we are taking down a heading; the vein is 4 ft. wide, and in working up into the sill we have come to some very good ore—we get pieces of stones in weight, and it is easy to work. There is no change in the house level. The mine during the last six weeks has improved very much, and the prospects of the vein opening out in the south vein forebore are very encouraging. The sales of lead ore since the middle of May amount to over 3000*lb.*

CATHEDRAL.—John Mitchell, Jan. 15: I am very pleased to say the 42 end east is looking better. The lode is 2 ft. wide, producing splendid stones of grey ore in the gossan. The lode in the shaft has also a better appearance—the lode more friable; in fact, a beautiful matrix. The lode in the 42 end east is just the same as last reported; producing good yellow and grey ore. In the fluor spar and prian we have a little over 3 fms. more to drive to cut the caunter lode, where we expect an important improvement.

CLEMENTINA.—W. Bennetts, Jan. 17: The lode at the engine-shaft is of much the same appearance as last week, producing some nice stones of lead, with a more promising appearance. We have not been able to do anything in the 55 and south for the past week, in consequence of having so much stuff in the bottom level, owing to breakage in the steam-engine, which I hope to have repaired in a day or two, when, after disposing of the accumulated stuff, we shall proceed to drive on the 25 end with all speed.

COMB MARTIN.—C. H. Maund, Jan. 18: The 15 east driven over 16 fms., and we cannot yet see the end of the level. In the hanging and footwall of the lode in places there are nice veins of silver lead and blonde. The 15 west is driven 2 fms.; the lode contains a portion of rich quality silver lead and blonde. At this point there is a cross-course 2½ ft. wide. Judging from the indications of the lode we may reasonably expect an improved lode on the other side of this cross course. The lode standing by the shaft to the east of the cross course is worth 5 cts. of silver-lead and 3 cts. of good quality blonde per fathom.

CWM ELAN (NEW).—W. Goldsworthy, Jan. 18: We are getting on with the preparations for sinking the engine-shaft with all speed. The same will be a success by the time we get the necessary castings, &c., from the foundry. The 3½ west of shaft, has improved during the past few days; the present value is 18 cts. of lead and blonde ore per fathom. The present appearance of the ends indicate a further improvement. All the other bargains throughout the mine are without change to notice. I have put two men to stop a piece of ground which is standing west of the winze (the 20 fm. level), worth 15 cts. of lead and blonde ore per fathom. The parcel of lead (from 15 to 18 tons), is waiting your instructions to forward here for the purchasers thereof. All the machinery is in good working order and I repair.

CWL UDLOW.—T. Jenkins, Jan. 12: I have stopped the men trenching at surface, the weather being too inclement. As far as seen the north and south lode is looking well, and where this lode forms a junction with the east and west lodes a large deposit of ore may fairly be expected; therefore the ait on the east and west ought to be pushed on to the junction, and this can be done for a small outlay.

D ERESBY MOUNTAIN.—Wm. Bennett, Jan. 17: The lode is full 6 ft. wide, worth 2½ tons of blonde to the fathom, and producing some nice lead work.

EAST VAN.—W. Williams, Jan. 18: The cross-cut north from bottom of the winze is driven 11 ft.; so far no lead has been seen, but I wish you to understand that this hard bar of ground is nothing new or unusual to us, as in Van Mine we often find it varying from 3 ft. to 3 fms. in thickness between the soft and the main lode; whether such is the case here or not time alone can prove. The rise in the back of cross-cut A is up 11 ft., turning out very good grey stuff, and improving as we go up; if it continues to improve as at present I intend crossing north out of Tempet shaft to intersect the lode at a point 50 fm. from surface. We are pushing forward the 25 west upon a very kind lode, yielding a little lead, but not sufficient to value. The shaftmen are still engaged cutting plat.

FRANK MILL.—James Rowe, N. Addems, Jan. 18: Setting Report: The 100 to drive north of engine-shaft, on the east lode, by six men, at 3. 10s. per fm.; lode producing 6 cts. of lead ore per fathom. No. 1 stope in back of this level by six men, at 11. 10s. per fathom; lode producing 5 cts. of lead ore per fathom. No. 2 stope by four men, at 11. 10s. per fathom; lode producing 10 cts. of lead ore per fathom. The stope in back of the 44, north of engine-shaft, on the east lode, by two men, at 11. 10s. per fathom; lode producing 4 cts. of lead ore per fm. The 72 to drive west of cross-cut, west of boundary rise, by two men, at 5s. per fathom; lode producing a little lead. The stope in back of this level by four men, at 2. 5s. per fathom; lode producing 5 cts. of lead ore per fathom. A cross-cut to drive west of boundary rise, midway between the 60 and 72 north, by our men, at 4. 10s. per fathom. We expect to meet with the west lode in a few days. The stope in back of the 60 fm. level, north of boundary rise, by six men, at 2. 10s. per fathom; lode producing 3 cts. of lead ore per fathom. We have communicated d the 45, south of east cross-cut, north of Orchard air-shaft, on the east branches with the 45 north of No. 1 cross-cut, south of Orchard air-shaft; this has opened up a great extent of ground. We have set to stop the back of this level by eight men, at 2. 5s. per fathom; lode producing 6 cts. of lead ore per fathom. We have four tribute pitches working by 13 men, at 6s. per ton for lead ore; men earning fair wages. Good progress is being made in the erection of the improved plunger-jigges and other alterations in the dressing floors. Machinery and pit-work in an efficient state.

GAWTON COPPER.—R. Rowe, G. Rowe, jun., Jan. 13: The lode in the 122 east is 6 ft. wide, worth 12s. per fathom. The lode in the stope in the bottom of the 117 is worth 15s. per fathom. The lode in the stope in the bottom of the 95 is worth 8s. per fathom. The lode in the 92 east is principally composed of spar and capel, intermixed with mundic and ore, showing a very kindy appearance. The tribute department is without change during the past week.

GLASSLYN CONSOLIDATED.—T. Jenkins, Jan. 15: I have put the men to bring the rails round to the shallow cross-cut, and when these are laid we shall save at least 25s. a fathom in the cost of driving. According to the appearance of the new lode at surface I feel certain that the ore must be better in depth, situated as it is in a good district for ore, and in the midst of good mines. We shall cut the new lode in about 30 fathoms of drivage, when there will be a back of about 60 fathoms, and should this lode prove as good in depth as it is at surface there will be a lasting property.

GLENROY.—R. Rowe, G. Rowe, jun., Jan. 13: I was at Glenroy yesterday morning, and underground, and then when you, I hope we shall see a good deal more of the 80 in the course of next week. There is no doubt in my mind of the ore ground having dipped away east north, and that the lode at the same time is making in splices, the nature of which can only be proved by opening out the ground. If the

blende lode we have now got in the 50 should continue to go off the other levels above and below will speedily have it. This may be the lode the 60 cross-cut is driving for; and in the 25 end north we have a strong and promising lode, but there is a part standing alongside to the east, which we shall cross-cut for shortly. I am anxious to push the 25 end north as fast as possible, to get under a run of ground in the adit level, where for a considerable distance we had a lead-producing lode in the bottom, while the roof of the adit was in the gravel or mush lying upon the rock. This adit was driven mostly under my own direction, about 10 years ago, and the men working in it attest now strongly to the fact that upon several occasions a good lode for lead was passed over in the bottom of the adit, and I know it was so; and in one or two instances we attempted to sink, but could do nothing on account of water. The ground in the 25 is speedy, and we can run out fast. The 40 stope continue with scarcely any change; lode about 2 ft. wide, mostly blonde, and worth 20s. per fathom. I certainly expected to find more lead in them. We are carting blonde to Laxey as fast as possible for sampling in the course of next week; but during the last fortnight, owing to the weather, we have not been able to do half work in the way of dressing. Still, I expect to have the estimated quantity of lead and blonde. I shall go underground again in the middle of the week and report. We shall also begin to cut lode in bottom of shaft and prepare for sinking.

R. ROWE.—R. Rowe, Jan. 16: I have been underground this afternoon. The 60 cross-cut is without change, and not advanced far enough to intersect the east lode. In the 50 rise the new blonde lode continues to go off, and having cleared the level, we have now a set of men cutting into the side under the rise, but as yet are only into a part of the lode which carries blonde; but as the main part of the lode is yet inside of a horse of rock it will take us some days before we can ascertain its value, and I know it was so; and in one or two instances we attempted to sink, but could do nothing on account of water. The ground in the 25 is speedy, and we can run out fast. The 40 stope continue with scarcely any change; lode about 2 ft. wide, mostly blonde, and worth 20s. per fathom. I certainly expected to find more lead in them. We are carting blonde to Laxey as fast as possible for sampling in the course of next week; but during the last fortnight, owing to the weather, we have not been able to do half work in the way of dressing. Still, I expect to have the estimated quantity of lead and blonde. I shall go underground again in the middle of the week and report. We shall also begin to cut lode in bottom of shaft and prepare for sinking.

MELLANEAR.—John Gilbert, Jan. 17: The ground in the 30, west of the adit, continues easy for driving, but the lode is still unproductive. We have made much progress for the past week in driving the 50 north on the floor, this end will be well ventilated after we have holed the 75 to Gandy's shaft. The lode in the 67, west of the shaft, is worth 5 tons of ore per fathom. The rise back of this level is worth 4 tons of ore per fathom. The lode in the 75, west of the shaft, continues easy for driving, but the lode is still unproductive. We have made much progress for the past week in driving the 50 north on the floor, this end will be well ventilated after we have holed the 75 to Gandy's shaft. The lode in the 67, west of the shaft, is worth 5 tons of ore per fathom. The rise back of this level is worth 4 tons of ore per fathom. The lode in the 75, west of the shaft, continues easy for driving, but the lode is still unproductive. 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THE MINING JOURNAL

these tribute pitches are at an average of 1s. 2d. in 12 ft. at 40 ft. per ton for tin.

HE IDOL.—John Ridge, Jan. 13: The lode in back of the deep adit, on Nant, will yield fully 15 cts. of lead ore per fathom. In cutting through from the north to the south part of this lode, 12 fms. above adit, we got a good mixture of lead ore, 15 in. wide, worth $\frac{1}{2}$ ton per fm., this proves the ore holding good in the two points, and I believe it holds good up to the old men's workings. We have cut into good stuff in another place, and I believe we can get 5 to 6 men out of lead ore ready in three weeks. I shall be very glad to see you down.

ROMAN GRAVELS.—A. Waters, Jan. 18: There is no change worthy of notice.

Operations and surface work generally.

LOOK HOPE.—James Blenkiron, Jan. 15: On Thursday and Friday last I was

at the above mines. On account of the severe stormy weather surface operations

in the shaft have progressed very slowly last month.

The shaft is now secured to the 15 fm. level this month, and trust to have better weather for surface

operations. Our dressing at Stotsfield has also been retarded on account of snow

and he very rains. On Wednesday next 25 tons of ore will be ready for

transportation. Under-ground: The men are employed in the following order:—Nine

men clearing and repairing the 42, which will be made good to end in two or

three days (offered to drive forward 10 fms., at 5s. per fathom, company tram-

ming stuff). We have sent up the 10 fm. cage to draw this level; this will in-

crease considerably the speed the level is driven. Four opening the stoping ground

in the 15, at 45s. per fathom. Two picking out drifts and sending same

down; worth $\frac{1}{2}$ tons of ore per fathom. Two picking out drifts and sending same

down; worth 2s. per fathom. Two preparing dressing-rooms, &c. Two preparing

pitwork in Stotsfield shaft. Two preparing dressing-rooms, &c. Two preparing

pitwork in Stotsfield shaft. Nothing has been done at dam or reservoir, and we hope in a few days we shall be

able to make good progress in draining the bottom level. The 60 west is worth 8s.

per fathom. The 130 end east is worth 10s. per fathom. The 40 east is worth 10s.

WHITE PRUSSIA.—W. Tregay, Jan. 17: The water is being got under very

fairly, but we have not been able to work in the bottom of the shaft or in the

bottom levels for a week. In the 30 east the lode is worth 20s. per fathom.

WHITE UNY.—Wm. Rich, Matthew Rogers, William Bennett, Jan. 13: The

water in the mine has somewhat abated, and we hope in a few days we shall be

able to make good progress in draining the bottom level. The 60 west is worth 8s.

per fathom. The 130 end east is worth 10s. per fathom. The 40 east is worth 10s.

WHITE CLIFF.—John Jones, Jan. 18: As I informed you in my last report

the severe weather we have experienced for the last few weeks prevented our

carrying on operations at the washing floors as quickly as we could wish, but now

we have an ample shed set up, which will in future allow us to carry on the work

in any kind of weather, and we are busy preparing another lot for sale. The

best quality I have seen from the mine. If considered by purchasers as non-

silver ore, or no consideration taken of silver, the price realized is not amiss. I

have spoken to Brown and the ore dresser both several times in reference to want

of energy on the dressing-floors. I told Brown last week unless more work was

done through we must have a new dresser. In fact I have been on the lookout for

one. I would advise the Gin shaft to be carried down to the 42; the stuff will

have to be drawn at two lifts—from the 42 to the 15, striking at the 15, then from

the 15 to the surface; I think this can easily be done with proper signals on rope. Not

one of the 42 has been arched; we propose when the Gin shaft is completed arch-

ing where required. This shaft will give us much easier access to the mine for

carting stones, &c., being much nearer the quarry, carting will only be about one

third as compared with Stotsfield shaft. The ground in the 42 being near the shale

is some part of a very soft character after exposure to air and water, and breaks

readily up by lead of lode; the only safety against this is an arch. I trust

we shall not have water in again before the Gin shaft is completed to the 42.

From the surface to adit in Gin shaft will not make room for pumps in by the

size of the cage; I think it would be advisable from adit downwards to make large

enough to admit of pumps, the cost in the first instance would be much less than

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to 105s. West Tankerville, 1s. to 2s.; Don Pedro, 1s. to 1s.; Sweetland Creek, 4s. to 6s.; Rica, 3s. to 5s.; North Laxey, 1s. to 2s. **FRIDAY (Opening).**—In the mining market Flagstaff shares are in demand at 3s., while Richmond shares have recovered to 7s. The former rather puzzle the holders by their wayward movements. The letters and reports, too, from the offices do not seem to make matters any clearer. There was a rumour this morning that influential buyers were at hand, but were not willing to do much until the shares have been knocked down again. North Laxey firm at 2s.; Chicago dull at 5s.; Rookhope steady, 1s. to 2s.; Don Pedro are quoted 1s. to 1s.; Javali, 1s. to 1s.; and Eberhardt, 8s. to 8s. The railway market is very depressed, districts are down to 4s., Great Eastern to 4s., and Caledonian to 1s.—**Two o'Clock.**—There is no improvement. Consols are now no better than 95s.; Russian of 1873 are 79s. to 80s.; Egyptian, 49 to 49s.; and Turkish Fives, 11 to 11s. Dublin Tramways, 17s. to 17s.; London, 8s. to 9s.; Metropolitan, 18s. to 18s.; Hudson Bay, 15s. to 16s.; 6s. to 6s. Railways are quiet. York, A. 13s. to 13s.; British, 15s. to 15s.; Metropolitan, 10s. to 10s.; North British, 16s. to 17s.; 10s. to 10s. **Four o'clock.**—Richmond mining shares have given way again, being quoted 6s. to 7s. Flagstaff are steady at 3s. to 3s. Chapel House, 2s. to 3s.; Bilton and Crump, 7s. to 8s.; Newport Abercon, 3s. to 3s. Consols are better at 95s. to 10s. to 9s. Railways have not varied much since two o'clock. Sheffield, 12s. to 12s.; Great Eastern, 4s. to 4s.; Caledonian, 12s. to 12s.; North British, 10s. to 10s. **FERNAND R. KIRK.**

Birchin-lane, Jan. 19.

** With this week's Journal a SUPPLEMENTAL SHEET is given, which contains:—Original Correspondence: The Commerce of the European Powers in 1876 (French and Smith); Cotton Powder, commonly known as Torto, or Safety Blasting Powder; Armour-Plates and Heavy Guns; South Australia: Flagstaff Mine; the Richmond Company (Messrs. F. W. Mansell and Co.); Gold Mining in California; Newly-discovered Gold Diggings in Chili (H. Sewell); the Emma Mine (J. H. Morton); the Arsene Trade; Gold Mining; the Clogau Consols (C. J. Harvey); London Mining Directors; Cornish Mining; Opening of the New Year; the Murdoch Testimonial (R. White); Devon Great Consols (J. Thomas); Wheal Grenville and its Management; South Tolverne and South Condurrow; East Laxey Mine; St. Patrick Mine; Frontino and Bolivia—Foreign Mines—Mining in Australia—Monthly Summary—Australian Mines—Registration of New Companies—Manufacture of Coke from Small Coal—Foreign Mining and Metallurgy—Oregon Hydraulic Gold Mines—Law of Limited Liability Companies—Prosecution under the Coal Mines Regulation Act—Manufacture of Peat Steel—Meetings of Australian Central, Leadhills, Monydd Gorddin, Metropolitan, Patent Fuel, Vaughan, Wheal Basset, South Carn Brea, Dolcoath, and Wheal Pever Companies.

* * The TITLE PAGE and INDEX to the FORTY-SIXTH VOLUME is also given with this week's Journal.

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SWORN METAL BROKERS,
ALLHALLOWS CHAMBERS, LOMBARD STREET, LONDON.
(ESTABLISHED 1849.)

The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, JAN. 10, 1877.

IRON.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Flag. G.M., f.o.b., Clyde.	2 16 9	—	English, ingot, f.o.b.	7s. 0 0
Scotch, all No. 1 ...	2 18 0	3 10 0	bars	7s. 0 0
Bars, Welsh, f.o.b., Wales	6 2 6	6 7 6	" refined "	8s. 0 0
" in London, 6 15 0	—	—	Australian	7s. 0 0
" Stafford, " 8 0 0-10 0	—	—	Banca	7s. 0 0
" in Tyne or Tees ...	6 7 6	8 10 0	Wallaroo	7s. 0 0
" Swedish, London, 10 10 0-11 0	—	—	Straits	7s. 0 0
Hills, Welsh, at works, 5 10 0	—	—	COPPER,	—
Railway chairs	—	—	Tough cake and ingot	8s. 0 0
Spikes	—	—	Best selected	8s. 0 0
Sheets, Staff., in London	9 5 0-9 10 0	—	Sheets and sheathing	8s. 0 0
Plates, Staff., in London	9 5 0-9 10 0	—	Fat Bottoms	9s. 0 0-9s. 0 0
Hoops, Staff.	8 5 0-8 15 0	—	Wallaroo	8s. 0 0-nom.
Nail rods, Staff. in Lon.	7 15 0-8 2 0	—	Burra, or P.C.C.	8s. 0 0
Chili bars, g.o.b.	7s. 15 0-—	—	Others brands	7s. 0 0-8s. 0 0

STEEL.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
English, spring	14 0 0-23 0 0	—	Best selected	8s. 0 0
east	25 0 0-45 0 0	—	Sheets and sheathing	8s. 0 0
Swedish, keg.	17 0 0-—	—	Fat Bottoms	9s. 0 0-9s. 0 0
fag. ham.	17 19 0-13 10 0	—	Wallaroo	8s. 0 0-nom.

PHOSPHOR BRONZE.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Bearing metal	£120 0 0-140 0 0	—	Other alloys	£120 0 0-140 0 0

LEAD.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
English, pig, common	21 15 0-22 0 0	—	Wire	8s. 1-9s. 1d.
" L.B. num. 22	0 0-22 2 6	—	Tubes	10s. 1-12s. 1d.
" W.B.	22 0 0-22 10 0	—	Sheets	9s. 1-9s. 1d.
" sheet and bar	23 0 0-—	—	Yel. met. sheath. & sheets	7s. 1-8s. 1d.
" pipe	23 10 0-—	—	2nd quality	10s. 1-12s. 1d.
" B.C.	24 11 0-24 0 0	—	Nails composition	9s. 1-9s. 1d.
" white	28 0 0-29 10 0	—	TIN-PLATES.*	per box.
" patent shot	25 0 0-—	—	Charcoal, 1st quality	1s. 3 0-1s. 3 6
Spanish	21 10 0-21 12 6	—	2nd quality	1s. 6 1-2s. 0

QUICKSILVER.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Flasks of 75 lbs. ware.	8 0 0	—	Bearing metal	£120 0 0-140 0 0
Swedish keg.	17 0 0-—	—	Other alloys	£120 0 0-140 0 0
SPETERL.	—	—	BRASS.	—
Silesian or Rhenish	21 0 0-—	—	Wire	8s. 1-9s. 1d.
English, Swansea	22 10 0-—	—	Tubes	10s. 1-12s. 1d.
Sheet zinc	25 0 0-25 0 0	—	Sheets	9s. 1-9s. 1d.

* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; 1s. 6d. per box more than IC quoted above, and add 6s. for each X. Tin-plates 2s. per box below the price of similar brands.

REMARKS.—The amount of business doing still continues extremely limited, and there is not as yet any prospect of improvement. A little speculative feeling in tin this week has been the only relief to the monotony of our markets; and the absence of any definite intelligence conveying a more hopeful and promising future prevent the restoration of confidence, without which it is impossible for any permanent recovery to take place. The telegrams respecting the proceedings of the Conference are so contradictory that they only tend to create confusion and exhaust the patience of those who read them; and the repeated postponements of the sittings greatly aggravate a most anxious state of suspense, and lead to the belief that the whole affair, in the end, will be a complete failure, especially if any result can be obtained upon the day's telegrams. So much time wasted can be ill afforded just now, as the day checks all progress, and exercises a most depressing effect upon our markets. The slackness of trade, however, is not confined to this country, but there is an universal complaint everywhere that trade is dull and in a very unsatisfactory condition; and as it spreads over such an extensive area it will probably be a long time before the commerce of the world resumes its ordinary and regular course. The money market should be closely watched, for large sums continue to be exported to France and Germany, and in the event of war Bank rate would be advanced immediately.

COPPER.—The market last week closed dull, and the quotation for g.o.b.s. was 74s. Wallaroo, 83s. 10s.; and Burra, 83s. On Monday the price declined 10s., for Chili, and a small business was done at 74s. Burra was 10s. lower—82s. 10s. The price of Chili on Tuesday was unaltered, but Wallaroo was reduced 20s.—to 83s.—and Burra 10s., or 82s., there being more pressure to sell Australian copper, and it was announced that to follow the Wallaroo sale on the 23rd inst., there would be a sale of 124 tons of Australian ingots, consisting of the brands "Esk" and "C. W. C." These auctions, it is clearly seen, are beginning to produce an injurious effect, and are extremely detrimental to the market, and they are neither conducive to the interest of sellers or to holders of copier generally.

No sooner is the date of these public sales made known than the price begins to decline, and very little business can be effected, until the result of the sales is declared. In proof of this it is only necessary to refer to the day previous to the Wallaroo sale being advertised, when the price of Wallaroo was quoted 83s. 10s., and on the day the advertisement appeared Wallaroo was obtainable at 84s. 10s., or a drop of 2s. per ton, and a few days afterwards, when it was reported that the other brands were to be disposed of in like manner, the price again immediately declined, Wallaroo being 82s. and Burra 82s. Of course, it was evident enough that the tendency of the market could not be otherwise, and that disastrous consequences must follow, for nothing could be so destructive to the stability of the market, or expose its weakness more, than forced sales in quick succession, and it is hoped that this mode of selling will soon be abandoned, as it is entirely unsatisfactory for an article like copper. The stocks of copper undoubtedly are excessive, and if first one holds and then another is going to press any quantity for public sale the decline will be more serious and rapid than anyone had ever calculated upon. As it is it will require the united strength of holders to preserve the market from a ruinous fall, and as prices must keep down for a considerable time on account of supplies being in excess of the demand the utmost care is needed to prevent an utter collapse, but any divided action amongst holders, such as sales by auction—or, in other words, for d sales—just the means to bring it about.

But assuming for a moment that the market instead of receding should by some unexpected movement under speculative excitement have a rebound, it could only be of a trifling character, and of very short duration, for if such an opportunity presented itself holders would certainly take advantage of it, and let slip some portion of their stock, and thus the upward tendency would soon be arrested. Speculators are fully aware of this, and, therefore, will not make a venture until the market is in a safer position, and a reduction either in price or in stocks must first take place before they will think of operating. The present slackness in trade does not in the least encourage the faint expectation that stocks will quickly diminish, and consequently, as consumers will be buying sparingly, shippers doing little, and speculators nothing, the prospects are as bad as can be, and holders had better realise without delay and save themselves from further loss. On Wednesday the market showed no change, 150 tons of g.o.b. sold at 74s. cash. Wallaroo was sold at 83s., sale terms, and Burra quoted 82s. In addition to the two public sales before mentioned, there will be a third also on the same day—23rd instant—for 155 tons of various brands—Burra, or "P.C.C.," "Esk," "Deer B.N.," and "Montferry." One forced sale a day does quite enough mischief to prices, but three is truly alarming, and will shake the foundation of any market, however strong and sound. On this day price remained nominally the same, and the market

was without animation. The advice to-day from Constantinople that Turkey peace, and a renewal of hostilities are long on a tremendous scale may be looked for. Everybody is apprehensive of the future, and buyers have all drawn off; the market to day has the appearance of sinking fast. Lake Superior has just been cabled 21, 10s. lower in price. Holders of Burra were soliciting offers to-day at 81s. 15s. Chili bars, 73s. 15s. cash.

IRON.—The slight amendment which took place a short time since in certain branches of this trade is gradually dying out, and prices are not quite so firm. Rails are maintained at late rates, but merchant bars to come forward are a shade easier. Nail rods keep fairly steady. Swedish iron quiet, and without change in value. From Wales it is reported that the time goes on without producing any material change, although in a few instances some of the works have a trifling order-book. The enquiries for bars are said to be almost nil, and very small clearances have been made during the past month. The Brazilian order for rails appears to be keeping one or two of the works going, and the fortnight's clearances have been chiefly to South America. Were it not for the demand for pig iron, which, however, does not come up to anything approaching what sellers would like to see, there would be a very indifferent state of things round about Newport. Some mention is made of re-opening a part of the works at Abersychan, but the trade is insufficient to keep the works that are already in operation fully employed it seems premature yet awhile to talk of increasing the productive power. In Middlesbrough orders for pigs have not been numerous, and buyers decline to buy in any quantity unless reduced rates are accepted. The deliveries for Scotland are good, but shipments for abroad are small. In bars there is only a limited business doing, and plate rollers might make a little concession in former rates. Rails continue dull. It is too early yet to say anything about the Spring demand, but, in case it is disappointing, prices may fall considerably, as stocks have been increasing for a long time past both in this district and in Scotland. In Scotch pigs prices have been slightly fluctuating. On Monday mixed numbers fell to 57s., cash, but subsequently advanced, and 57s. 6d., one month, was paid. The following days it again receded, and on Thursday was no better than at the opening—57s.—and to-day mixed numbers are quoted 59s. 9d.

SHIPMENTS.

Week ending Jan. 15, 1876	Tons
Week ending Jan. 13, 1876	6,501
Decrease	604
Total decrease for 1877	2,399
Imports of Middlesbrough pig-iron into Grangemouth:—	—
Week ending Jan. 13, 1877	7,085
Week ending Jan. 15, 1876	4,955
Increase	2,730
Total increase for 1877	6,945

LEAD.—There is very little to report in this metal; prices have been quoted much about the same as before—an occasional parcel or two of English in second hands have been disposed of at slightly lower rates, but with this exception no change has been made.

SPELTZ.—Silesian maintains its previous position.

ZINC.—Zinc is

ing works, and as large a staff of men as could be mustered to the spot as quickly as possible, it was too late to do more than to check the progress of the fire, there being a strong storm of wind blowing, and 22 houses were on fire at one time. More than 20 houses were burnt, the greater part of which were not insured. Mr. Arthur Taylor concludes by making an earnest appeal to us to get up a subscription to aid him in relieving these poor people. He says there are about 15 to 20 families entirely ruined, some without even enough clothing, and nothing to eat, except what those who were fortunate enough to escape being burnt out can give them. They are all in most urgent need, and what can be done must be done at once.

Mr. John del Rey, 325 to 335; the latest telegram received, dated Dec. 12, Rio de Janeiro, Jan. 12, states the produce for the month of December to have been 41,500 oits, of the value of 16,081L, the ley of ore being 7-3 oits, per ton. Advices were received on Monday from Morro Velho to Dec. 19. The return for November was 14,815L, and the cost 6593L, leaving 8222L profit. The cost is below the average. Excepting the month of September, it is the smallest cost incurred in any one month during the year. The profit under the circumstances is as much as could be expected. They have now a fuller supply of both mineral and water, and, therefore, should be able to extract more produce, and in proportion as this is done augment the amount of profit.

The attendance of natives, though considerable, has not given as high a daily average as the last two weeks of November. The quarrying and stamping of mineral has been carried on very steadily, the output for the fortnight amounting to 3466 mine wagons, or a daily duty of 288 mine wagons, which may be considered very good and large duty. The sinking, driving, and stowing in the mine are going on regularly, the pumps working easily and well, and the hauling of ore conducted without any interruption or breakages of any kind. The stamping mill continues to be rather inconveniently filled with a considerable increasing stock of mineral, though the stamping mill are now being at what might be regarded as high rates of speed. The stamps are kept well supplied with mineral. A large body of auriferous sand is caught in the strakes, and subjected to the amalgamation process—which is working pretty well—though the loss of quicksilver is greater than could be wished. All the arrastres employed in the re-treatment of the filings are kept fully and constantly at work, but they are unable to re-grind more than the fourth of this tailing sand, as received at the Praia works. The more than three-fourths of the body caught is deposited close to those works for future treatment, as circumstances may render such convenient.

Santa Barbara, 23 to 28; the advices to December 12 state that during November 1021 tons of mineral were stamped, yielding 3206 oits, per ton, or a total of 3386 oits, of gold, which, valued at 6d. per oit, amounts to 1651L 11s. as the estimated value of the produce for the month. The mine working cost for the same period, calculated by the manager at the exchange of 24L, amounted to 913L 6s., thus showing an estimated profit of 738L 5s. for November. From this profit, however, a deduction of about 30L should be made, owing to the exchange having been calculated at the mine at a considerably lower rate than was ruling at Rio de Janeiro. Don Pedro North del Rey, 2 to 2½; the usual telegram, which should advise November produce, is not to hand, owing no doubt to breakages reported in Rio and Bahia cable. The report for November gives produce from 1454L 90 tons, dry weight, 2552L 19s. 6d. cost (ordinary), including all general expenses, 1899L 14s. 11d. Capt. Vivian reports under date December 17:—"Produce weighed to date, 1809 oits."

Argentine, 5½ to 6; advices are due from these mines next week. From the latest accounts the works were progressing in the most satisfactory manner, and increased returns of gold were expected, as working in the Piquó Mine will be resumed about this date. Com. 5 to 5½; a detailed report, which arrived from these mines Saturday last, appears in our issue to-day. An important discovery has been made in stripping down the new shaft in the Isolina Mine, where it is found that a rich portion of the lode has been left standing, worth 60L per fathom. The report and advices received from these mines are of the most satisfactory character.

Flagstaff, 3½ to 3½; the fact of the company having regained possession of the mine was referred to in last week's Journal, and the improved prospects were also noticed, and the directors are now appealing to the shareholders to follow up their great success, remarking that they have continually pressed upon the shareholders the pecuniary difficulties of the company in London, and are now under the necessity of informing them that an execution for close upon 900L was last week put in on the company's office furniture and effects, which were again protected by the directors to the extent of 100L. The solicitors of the company have since apprised the court that the execution creditor is taking active steps to enforce his judgment, and they understand he will proceed by presenting a petition to wind up the company. The directors can only meet this difficulty by getting the shareholders to lend money on debentures, and they beg their prompt attention and assistance. They have also to report the receipt on Saturday last of a bill for 1000L at 10 days sight, drawn by the company's representative at the mine. A telegram received on Tuesday informed the board that the Court at Utah has confirmed the company in possession of the mine, and restrains Mr. Davis from interfering. For this result the directors are entitled to much credit for the energy and perseverance they have displayed in the matter. Such a result will, it is thought, be highly satisfactory to the shareholders, especially as the new manager in his recent letters describes the plot which the opposite party were devising in order to seize the mine from the English shareholders, and how he frustrated their intentions. He states also, what is much more to the point, that he is turning out 60 tons of ore daily, and that the mine is an exceedingly valuable one.

Richmond, 6½ to 7; the usual weekly telegram gives the week's run at 850,000. The refinery has this week produced doré bars to the value of 35,000. The manager's report for the week before last did not reach the London office till Saturday. But little progress appears to have been made in the 800 and 700 exploratory drifts started from the main shaft. The fact that the lode is trending away from the shaft increases the length and work of the drifts started in limestone to intersect it. "The ore cut by the drift at the 600 is still narrow. The stopes are looking well, especially the new stope started from the intermediate level, 38 ft. above the 600 level," where it will be borne in mind the ore was 30 ft. wide and of good quality. "The workings on the west side of the hill have slightly improved." But little change is recorded in the last report, which states that "the staves are looking better than they were last week." "Works on the west side of the hill are without improvement; all other parts of the mine about the same." "All the furnaces have been running well through the week, smelting large quantities of ore. The grade of the ore being smelted is low." "The railroad is nearly completed, the lower end is finished and the upper end will be in a few days." The only unfavourable feature about the mine appears to be the comparatively low grade of the ore that has latterly been sent down for smelting. In August a quantity of rich galena was met with, which raised the profit for that month to over 20,000L, but the stratum proved to be but thin, and yet no corresponding body appears to have presented itself, and the ferruginous ore once more predominates, thus reducing the assay. The west hill discoveries were expected ere this to have made up the deficiency, but as yet the forward drift has not answered expectations. The character of the lodes in the Richmond drift is extremely irregular masses of ore, erratic in plan and section, widening out into immense chambers, and as suddenly pinching in at one or other end, renders it extremely difficult to form any opinion of what the forward drifts may develop, or how soon the grade of the ore may diminish or increase. The directors have issued a circular explaining that some three months since, thinking it advisable to obtain patents for certain new mining grounds located in right of having traced the lode to them, the required advertisements were issued for 60 days, no protest being lodged till within a few days of the expiration of the time when a legal adviser expresses the opinion that the protests in these are unimportant. However, as they have been duly made, the question must be settled before the State authorities, and the decision will soon be known. The directors consider that the lode rights will suffice to hold the locations in question, even if the patents should not be obtained. A local journal of Dec. 27 reports that "United States patents have been issued to two parcels of mineral land in this district. One piece is confirmed to the Richmond and the other to John E. Plater."

Exchequer, 1½ to 2½; the 400 is in 57 ft. from the cross-cut, and in fine ore, and all the stopes are doing well; 55 car-loads of ore were raised during the week. I.X.L., 3 to 1; the north drift is in 370 ft. from the cross-cut, on the 200 ft. level; 12½ ft. were driven during the week, and the lode remained without change; 25 car-loads of good ore were raised from the drain tunnel, which was advanced 10 ft. Some good ore was coming in from the back of the drift. Eberhardt and Aurora, 8½ to 8½; the tunnel is being vigorously prosecuted, and the tunnel through Treasure Hill, started by a New York company last spring, which has been lying idle for several months for want of funds is soon to be worked. The Old Smoky Mill has been closed; the Stafford Company, who have leased this mill, have been running it on their own ores, but have closed it down until spring.

The market for Hydraulic or Gold Washing shares has been steady at quotations. The latest information by telegram from California states that it has been raining for several days past, so that it may be assumed that the rainy season has really set in. Should this be the case washing will be quickly resumed and profits will, it is anticipated, resume, as all the claims represented on the market are ready to commence. Blue Tent, 3 to 3½; in another

column will be found a letter from the manager respecting the last run, from which it appears that the gravel at South Yuba claim gave nearly a dollar per inch of water used for 24 hours washing. This result is exceptionally good, and still further proves the correctness of the manager's remarks that with abundance of water there is no question about the property yielding good and substantial profits. Oregon Pref., 4 to 4½; in another column are extracts from the report of Mr. J. E. Bowe, who superintended the operations required for opening the company's mines. The report speaks favourably of the extent and value of the property, and now that the claims are in working order, and the ditches completed, there appears to be no doubt at all as to the success of the future workings. It is understood that the company intend to issue the remainder of the preference shares. The entire amount of this stock will be repaid out of profits before the holders of ordinary shares participate, while the preference stock will after repayment rank equally with the ordinary shares for dividends.

With regard to shares in Lead Mines, Van is quoted 37½ to 40, ex div.; the usual underground works are being vigorously proceeded with, and the mine continues to look as well as ever. East Van, 8½ to 9. Van Consols, 2 to 2½; the bottom level has been reached by the new drawing-shaft, and every effort is being made to clear up the same to commence operations on the course of lead which only waits development at this point. The manager speaks well of the future of this property. Glyn, 2 to 2½; all work is progressing with regularity, and the shaft is being pushed down with the confident expectation of a good course of lead being met with at an early date. Grogwinion, 5½ to 6; the meeting is called for Jan. 31, and it is proposed to pay a dividend of 20 per cent. Wye Valley, 6 to 6½; the 22 and the east end of adit have again improved, and prospects are good. On Wednesday 60 tons of lead were sold, at 15L 3s. 6d. per ton. West Wye Valley, 3½ to 4; the lode at Brookes' shaft is looking well for rich deposits of lead, and in the 40 there has been a further satisfactory improvement. Red Rock, 2½ to 3; the bottom level is opening out well, and all operations are going on favourably. St. Harmon, 3½ to 3½; the 67 and 35 are looking better for some time past, and yielding a good quantity of ore. The manager says that there are indications of further speedy improvements, and that prospects were never brighter than at present. South Cwmystwith, 3 to 3½; new shares; during the week further change for the better has occurred, the lode being worth 3 to 5 tons per fathom. Assheton, 1½ to 1½; West Assheton, 1½ to 1½.

Penninerley, 1 to 1½; there is no change reported from this mine. The continued rains interfere somewhat with operations both underground and at surface. The sale on Wednesday last, 50 tons, realized 791L 5s. Pateley Bridge, 2½ to 3; the Rake vein in the 30, both east and west, is rapidly improving as the end comes up under the rich courses of ore left by the former workers, and the agent is sanguine of good results here. Other parts of the mine are also improving. West Pateley Bridge, 5 to 5½; the level north-west from No. 2 shaft upon the vein is worth 1 ton of lead ore per fm. The cross-cut north from same level upon the cross-vein is improving as the North Rake lode is approached. Good progress is being made with the erection of the dressing apparatus, and the agent expects to commence dressing the ore at surface next week.

Penstruthal, 11s. to 13s.; the mine continues to open out well, and bids fair to revive the fortunes of the famous Gwennap district; regular and substantial returns of copper ore are now being made. Cathedral, 20s. to 30s.; is opening satisfactorily; a good parcel of copper ore will be sampled this month. Subjoined are the closing quotations:—

Assheton, 1½ to 1½; Carn Brea, 35 to 40; Devon Great Consols, 4½ to 4½; Dolcoath, 37 to 39; East Caradon, 1 to 1½; East Van, 8½ to 9½; Glyn, 2 to 2½; Great Laxey, 20 to 21; Great West Van, ½ to ½; Great Wheal Vor, ½ to ½; Hindston Down, ½ to ½; Leadhills, 6 to 6½; Marks Valley, 1 to 1½; Parys Mountain, ¾ to ¾; Pateley Bridge, 2½ to 3; Pennerley, ¾ to ¾; Penstruthal, ½ to ½; Roman Gravels, 13½ to 14½; Tankerville, 8½ to 8½; Tincroft, 19 to 21; Van, 37½ to 40; Van Consols, 1½ to 2½; ex. div.; West Assheton, 1½ to 1½; West Bassett, 4 to 5; West Cliverton, 17 to 18; West Tankerville, 1½ to 2½; Wheal Creborth, 2½ to 3½; Wheal Grenville, ¾ to ¾; Almaden and Tinto, ¾ to ¾; Argentine, 5½ to 6; Birdseye Creek, ¾ to ¾; Cape Copper, 38 to 40; Cedar Creek, ¾ to ¾; Chontales, 5½ to 6½; Colorado Terrible Lode, ¾ to ¾; Condes de Chil, ½ to ½; Don Pedro, ½ to ½; Eberhardt and Aurora, 8½ to 8½; Emma, ¾ to ¾; Exchequer, 1½ to 2½; I.X.L., ¾ to 1; Flagstaff, 7½ to 8½; Frontino and Bolivia, ½ to ½; Javali, ¾ to ¾; Kapanga, ¾ to ¾; Last Chance, ¾ to ¾; Malpaso, ¾ to ¾; Malabar, ¾ to ¾; New Quebrada, ¾ to ¾; New Pacific, ¾ to ¾; Pestarena, ¾ to ¾; Plumas Eureka, ¾ to 2; Rica, ½ to ½; Richmond Consolidated, 6½ to 7; San Pedro, 1 to 1½; St. John del Rey, 325 to 345; Sierra Buttes, 1 to 1½; South Aurora, ¾ to ¾; Sweetland Creek, 3½ to 5½; Teocoma, ¾ to ¾; United Mexican, 2½ to 2½; Blue Tent, 3 to 3½; Oregon (pref.), 4 to 4½; Wheal Agar, 3 to 3½; West Pateley Bridge, 5 to 5½.

COLLIERS.—Business on the market for colliery shares has not been during the past week quite so active as at the commencement of the year. A fair number of transactions have, however, taken place, and in some cases a rise in prices is to be recorded. The reports from the various coal centres are more than usually good, and foreshadow a further improvement. At Newport especially trade is brisk, and evidence of increasing activity is noticeable in the enlarged and be enormous imports of Spanish ore for the manufacture of iron. A better state of things is also recorded from North Wales, Lancashire, Barrow, and Newcastle. Under these circumstances no doubt collieries will become more profitable, and again sought after as an investment. A good number of transactions have taken place in Cardiff and Swansea, New Sharston, and Chapel House, all of which are slightly better; Newport Abercarn and Thors Gwawr have been offered, and leave off at their lowest price. Cardiff and Swansea closest 1½ to 2, and New Sharston after being at 4½ to 5½ leave off at 4½ to 5. A Chapel House the new pit is reported to be down 373 yards, ½ yards having n. withstanding a slight delay, been sunk since this time last week. It is expected the pit will be completed to the Park Mine, at a depth of between 390 and 400 yards, in about three weeks. The manager reports a brisk trade, and that all things are going on well. The shares close firm at 3½ to 3½. Thors Gwawr close at 2 to 2½, and Cakemore 2½ to 3. The dissatisfaction of the shareholders in Newport Abercarn with regard to the debentures still continues, and the shares have reduced to 3½, at which price they close flat. Bilsom and Crump Meadow are at nominally 7½ to 7¾. It is anticipated the amalgamation with the Fox's Bridge Company will be completed by about the end of next month. We hear that a new seam of coal has been struck at West Mostyn, but are as yet not in possession of the details. Altimi, 5 to 5½; operations are proceeding satisfactorily. The new engines have been started and work well. At the No. 2 pit drivings upon the "Dew" coal exhibit good results. Llwy Hall, 9½ to 10; work is being pushed forward here as quickly as possible. The "Main" coal is reported of excellent quality.

At the Truro Ticketing, on Thursday, 3698 tons of copper ore were sold, realising 15,051L 5s. 6d. The particulars of the sale were—Average standard, 104.10s.; average produce, 6½; average price per ton, 4L 1s. 6d.; quantity of fine copper, 241 tons 8 cwt. The following are the particulars:—

Date. Tons. Standard. Produce. Per ton. Per unit. Ore copper. Dec. 21. 2338 106 0 6½ 23 17 6 13s. 7d. 267 18 0 Jan. 4. 1430 103 0 0 7 4 1 6 12 8½ 63 12 6 18. 3698 104 10 0 6½ 4 1 6 12 5½ 62 7 0

Compared with the last sale, the decline has been in the standard 17L 12s., and in the price per ton of ore about 2s.

At Swansea Ticketing, on Tuesday, 1365 tons of copper ore were sold, realising 13,726L 2s. 0d. The particulars of the sale were—Average standard for 9 per cent. produce, 95L 16s. 4d.; average produce, 13½; average price per ton, 107.1s. 1d.; quantity of fine copper, 187 tons 14 cwt. The following are the particulars of two last sales:—

Date. Tons. Standard. Produce. Per ton. Per unit. Ore copper. Jan. 2. 1722 95 9 8 103 0 0 14s. 8d. 273 9 0 16. 1365 95 16 4 13½ 0 0 10 1 1 6 14 7½ 73 2 6

Compared with the last sale, the advance has been in the standard 370 ft. and in the price per ton of ore about 1s.

The Cape ores gave a produce of 26½ per cent., and sold at an average of 19L 10s. 2d. per ton, or 14s. 11½d. per unit of fine copper, the standard realised being the same as that for the whole sale. On Jan. 30 there will be offered for sale 2014 tons, of which more than three-fourths is from Newfoundland, the parcels being—Betts Cove, 1434 tons; Cape, 312 tons; Union, 238 tons; and copper regulus, 10 tons.

The directors of the National Boiler Insurance Company, Limited, have declared the usual dividend for the half-year ending Dec. 31, at the rate of 12½ per cent. per annum.

NOTICE OF REMOVAL.

MESSRS. F. W. MANSELL AND CO. (SWORN STOCK AND SHARE BROKERS), have REMOVED to 43 and 43½, PALMERSTON BUILDINGS, OLD BROAD STREET, LONDON, E.C.

ZINC ORES.

ARMAND FALLIZE,
INGENIEUR-CIVIL, A LIEGE (BELGIUM)
BUYER

1.—CARBONATED AND OXYDED ZINC ORES (CALAMINE, &c.)
2.—ZINC AND LEAD ORES MIXED TOGETHER, BUT DRESSABLE KINDS ONLY

CAPPER PASS AND SON, BRISTOL,
PURCHASERS OF
LEAD ASHES, LEAD SLAGS, SULPHATE OF LEAD, HARD LEAD, BRASS SLAGS AND ASHES, COPPER REGULUS, MATTE, SCORIA, TIN ASHES, TERNE ASHES, &c., and MIXED ORES or REFUSE, containing LEAD, COPPER, TIN, or ANTIMONY.

GEO. G. BLACKWELL,
5, CHAPEL STREET, LIVERPOOL,
PURCHASER OF

MANGANESE, ARSENIC, FLUOR-SPAR, WOLFRAM, BLEND, CALAMINE, CARBONATE and SULPHATE of BARYTES, ANTIMONY ORE, CHROME ORE, MAGNESITE, EMERY STONE, PUMICE STONE, OCHRES and UMBERS, CHINA CLAY, LEAD ORE for POTTERS, TALC, &c.

J. BERGER SPENCE AND CO.,
31, LOMBARD STREET, LONDON, E.C.,
UNDERTAKE the DISPOSAL of ALL DESCRIPTIONS of MINERAL PRODUCE and PROPERTIES; also the INVESTIGATION and VALUATION of MINING ESTATES and LEASES.

HENRY AND JOHN SEWELL,
MINING ENGINEERS, AND
CONTRACTORS FOR MINING AND RAILWAY MACHINERY.
VALPARAISO, CHILE, SOUTH AMERICA.

WILLIAM CRAWFORD,
COAL FACTOR AND GENERAL AGENT,
CONSTANTINOPLE,
IS OPEN TO ACCEPT THE AGENCY OF A GOOD FIRM.

SAN JUAN, COLORADO, U.S.A.
E. STEINBACH, C.E.
METALLURGIST AND ASSAYER,
WILL VISIT, INSPECT, AND REPORT UPON MINES,
DEL NORTE, RIO GRANDE COUNTY, COLO.

T. R. GLOVER,
MINERAL DEALER AND BROKER AND GENERAL FINANCIAL AGENT
2, EXCHANGE STREET EAST,
LIVERPOOL.

WALLAROO COPPER.

MESSRS. JAMES AND SHAKSPEARE beg to give notice that their NEXT SALE will take place on Tuesday, the 23rd inst., at Two P.M., at the Baltic Sale Room, Threadneedle-street, when they will OFFER FOUR HUNDRED AND SIXTY TONS in CAKES and ONE HUNDRED AND FIFTY TONS in INGOTS.

Catalogues may be obtained at their offices, 10, Austin Friars, E.C., London, and 3, Peter-street, Liverpool; also of Mr. D. Docker, 38, Cannon-street, Birmingham.

MEXICO, NEW MEXICO, ARIZONA, UTAH, NEVADA, AND CALIFORNIA.

F. M. F. CAZIN,
MINING AND CIVIL ENGINEER,
AT SANTA FE, NEW MEXICO, U.S. OF AMERICA.

Has 24 years' experience in Mining and Smelting, and 10 years' experience in American Business and Law, offers his services at moderate charges for Reporting on Mining and other Property in any of the above-named States or Territories; gives correct, safe, and responsible advice as to securing full titles and possession; and, as to best mode of utilising the property, will assist in settling existing difficulties by compromise, and in disposing of developed mining property when held at real value; offers his assistance for securing undeveloped mining properties at home prices. As to care taken in reporting, reference is made to the *Mining Journal* Supplement, April 1, 1876, containing report on property of the Maxwell Land Grant and Railway Company; as to technical standing, to the prominent men of the trade—compare *Mining Journal* of Aug. 30 and Nov. 31, 1

NOTICES TO CORRESPONDENTS.

* * Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be *kept on receipt*; it then forms an accumulating useful work of reference.

SYNDICATES—"J. C." (Fadeaster).—Few, if any, respectable brokers connect themselves with syndicates; the organisation of such projects is chiefly undertaken by quite another class of persons. The system facilitates the perpetration of the greatest injustice upon *bona fide* investors to whom the members of the syndicate sell, and is usually disastrous to such members of the syndicate as are not hourly in the market, and have anything to lose.

CLEMENTINA—"Speculator" (Brighton).—With reference to the constitution of this company it is to be remembered that the Gwydyr Park property was for two years advertised in the Journal and elsewhere, and no one would purchase it, and that so far from the mine having been stopped to "get rid" of the share holders, every means were taken to induce them to go on, and after Clementina was formed the promoters wrote to all the Gwydyr Park shareholders they knew urging them to join at par; so that there is no ground for the complaint that unfair advantage was taken of them in connection with the reconstitution.

Received—F. M. F. Cazin (Santa Fé): Next week—"R. W."—"T. C."—"Shareholder" (Penrith) — "Shareholder" (Van Cons) — "Constant Reader" (Leith) — "J. G. B." (Postkarte) — "M." (Yes) — "J. K." — "H. and S.": Perhaps next week.

AMERICAN SUBSCRIBERS.—In reply to several enquiries, it may be stated that subscribers in the United States can be supplied with the *Mining Journal*, postage, at the price of \$5 50c, gold per annum, payable in advance, by remitting to Mr. D. Van Nostrand, publisher, and importer of scientific books, &c., Murray-street, New York; or, direct to our Office, 26 Fleet-street, E.C.

THE MINING JOURNAL,
Railway and Commercial Gazette.

LONDON, JANUARY 20, 1877.

FREE TRADE, OR RECIPROCITY.

British traders need to be cautioned not to allow their regret at the current seeming depression in business to make them lose confidence in principles which have hitherto—indeed, still are—working so well for the nation. Beyond doubt we might have thought that our example would have had a more direct influence upon other nations; that other great producing countries would be more ready than they at present seem to avail themselves of the numerous advantages which invariably follow in the wake of unfettered commerce. If, however, their action should be disappointing ours should not be unwise. We have embarked upon a free-trade policy, we accepted it for better or worse, and hitherto it has worked greatly to our advantage. If now and then the want of commercial foresight on the part of our neighbours should seem to be but little encouragement to continue a practice by which they are so largely served it must not be forgotten that England adopted free trade not for others, but for her own good. Unfettered commerce has the "quality of mercy," but if all who are benefited by it have not yet satisfied themselves of the duality of its blessing it is not for us who are better informed to lose faith in it.

The three members for Leeds are Mr. W. ST. J. WHEELHOUSE, Mr. ROBERT TENNANT, and Alderman JOHN BARRAN, and they were all present at the annual meeting, on Wednesday last week, of the Chamber of Commerce of their borough. The council, in their report, regretted that during the past year most of the staple trades of the town had been in anything but a flourishing condition. There were, however, towards the close of the year, the council added, some signs of improvement, which it was "earnestly hoped might develop into a thorough revival of activity." The report likewise dealt with questions affecting our export business, and especially the French Tariff and the Austrian Tariff, and it did not omit the Philadelphia Exhibition. Lightly touching upon these themes, Alderman BARRAN, M.P., who was the President, pointed out that the treaty with Austria expired on the last day of 1876, and that the French Treaty was on the eve of expiring. Steps had been taken in the case of Austria to make such terms as were believed might lead to the advantage of the country generally. Two difficulties had met them in connection with foreign trade. One was that Austria, Germany, France, and Italy had been to some extent suffering from the same depression of trade as ourselves. This had naturally led those who were engaged in trade, and who had not the same large experience of free trade as we had, to suppose that a little more protection for their domestic industries would be of great benefit. Another difficulty with which English traders had to contend was that a spirit of enterprise was growing up in these countries the result largely of the good example set them by England, and the profitable results which had accrued to her by her enterprise. Of this the consequence was that we had to contend with competition far beyond anything we have known before. Nor was Alderman BARRAN prepared to expect that we should not have even greater competition in the future than in the past and the present.

Still, serious though it was, it did not discourage him; he had no fear but that England, "with her wonderful enterprise and industry, would be able to hold her own with any other nation in the world on fair and mercantile terms." These views were not shared by Alderman BARRAN's colleagues. Mr. WHEELHOUSE boldly declared that a course of action would have to be adopted which we may remark English traders are generally accustomed to associate with the term "retrogression." It is Mr. WHEELHOUSE's openly expressed view that we shall have to put a protective duty upon a large number of articles of commerce, or ensure reciprocal action. He would "not give our skilled labour, our machinery, our coal, and our iron, and get nothing in return." Mr. TENNANT, who we need hardly say is the proprietor of extensive colliery property in Yorkshire, did not share the apprehension of his colleagues that the trade of the country is declining, and thought that we should be "able to hold our own, though at present we were no doubt labouring under a state of almost totally unprecedented depression." Nevertheless, even Mr. TENNANT could not but think that in dealing with some of those countries which did not take the same view as ourselves "if we insisted on something like reciprocity it might not be a bad thing; it might, indeed, prove that the best means of imbuing them with an acknowledgment that free trade was best for themselves as for the whole world would be by not allowing them with impunity to put prohibitive duties on our goods whilst they (the foreigners) were permitted to introduce their manufactures into this country without restriction."

Correctly based and confident of the future as are the sentiments held and expressed by the one member for Leeds, it would be unsatisfactory in anticipation of the future if they stood alone by the side of the sentiments of his colleagues, for we must not conceal from ourselves that we have still to face a greater competition than we have ever yet experienced. If at this stage of the struggle men's hearts fail them what are we to look for when the tug of war is intenser? The immense impetus given by free trade to the industrial capabilities and resources of this country were never more clearly shown than now when the Board of Trade returns demonstrate a greater aggregate business with foreigners in 1876 than ever before. The ability which free trade has afforded us of supplying our products at a low price has come to our aid at the required time, enabling us to sell our produce (iron excepted) in greater aggregate quantities than ever, and thus to save our people from the distress which has pervaded America and every continental country save frugal France. The opinions held by men who are members of the Legislature go far in deciding the action of the nation whose laws they formulate, but members can only be what their constituents make them. It is satisfactory then to note that neither the protectionist nor the reciprocity views of Mr. WHEELHOUSE or Mr. TENNANT were supported either by the parliamentary coadjutor of those gentlemen, or by another leading member of the Chamber who took an active part in the business. Speaking in the behalf of the mining and mineral industries we should be concerned if this were not so. On account of the features of our current foreign trade in iron we might by some people be expected to have feelings in sympathy with the retrogressive opinions under review. The views, however, which we expressed last week should be a sufficient

explanation of our confidence. The returns for 1876 do not, as a whole, cut up badly. "The coal and iron trades of Great Britain have by no means a cheerless outlook." Very different would be the state of things if there should be any serious attempt to impose protection or to demand reciprocity. The very first interests which would be affected would be those classified under the comprehensive designation of mining and metal industries. And so at the Leeds meeting a foremost Yorkshire ironmaster declared, Mr. JAMES KITSON, jun., pointed out that the iron trade was one of the industries which had suffered the greatest amount of depression. In that trade he was, he said, greatly interested; yet he would say, "Do not practice reciprocity upon the articles I manufacture." Mr. KITSON attributed the depression in the iron trade more to the recoil from over production, stimulated by "the rotten system of foreign loans," and the undue formation of limited liability companies, than to foreign tariffs. These causes have had their influence in bringing about that which we now see; still it is most desirable, as Mr. KITSON would doubtless admit, that Chambers of Commerce and others should use their utmost influence with our own and with foreign Governments to secure the adoption of a liberal foreign policy abroad, but we must not forget that we tried reciprocity from 1814 to 1832, and year by year our trade went down. Do not let us attempt to repeat that error, nor foolishly sign for the onions and the garlic of Protectionist bondage.

OUR COAL ABROAD.

Without taking any account of the quantities of coal shipped for the use of steamers engaged in the foreign trade, we may venture to affirm that our coal exports have grown very greatly during the last ten years, and that they acquired an unprecedented importance in 1876. The annexed table, illustrating the quantities and value of the coal exported by us during the ten years ending with 1876, inclusive, fully justifies the observation which we have just made:—

Year.	Coal exported.	Value.
1887	10,415,778	£5,392,452
1888	10,837,804	5,852,525
1889	10,588,425	5,067,790
1870	11,405,092	5,506,890
1871	12,747,959	6,246,133
1872	13,198,494	10,442,321
1873	12,632,333	13,205,818
1874	13,927,205	11,984,621
1875	14,541,916	9,658,088
1876	16,285,899	8,901,716

There is an extremely satisfactory feature in this comparative statement—viz., that while the price of the coal exported from our shores in 1873 averaged more than 20s. per ton—in 1876 the corresponding price was only about 11s. per ton. This return to lower prices has probably stimulated the external consumption of our coal; but whether it has done so or not it cannot fail to have been of material aid and assistance to many branches of the national industry.

The increase which occurred last year in our coal exports was very generally distributed among our external coal customers, but was especially noticeable in the case of France. That country made a grand parade some 15 years since of its intention to become independent of its neighbours in the matter of its coal supplies, but as a matter of fact France now takes more coal from us than at any former period of her history. Twenty years since, 1,000,000 tons would have been considered a good average exportation for twelve months to France; but in 1876 we sent the French no less than 3,250,599 tons of our coal, as compared with 2,706,210 tons in 1875, and 2,370,661 tons in 1874. The increase in last year's deliveries will be seen to have been no less than 544,399 tons, and it is a matter of doubt whether the demand for our black diamonds upon French markets will not continue to expand. Our coal exports to Russia have also been increasing rather materially of late, having amounted in 1876 to 1,182,384 tons, against 895,860 tons in 1875, and 832,765 tons in 1874. Russia has vast stores of coal wealth, but she does not work them. Russian statesmen being, unfortunately for Russia, more intent upon acquiring additional territory for the Czars than upon securing more material comfort and prosperity to the Russian people. Germany, again, has plenty of coal, and the Germans even sell coal tolerably freely to their old antagonists, the French; nevertheless, we sent the Germans last year 2,271,901 tons of our coal, as compared with 2,172,384 tons in 1875, and 2,057,020 tons in 1874. Ever so many other countries also imported our coal more freely in 1876 than in 1875. Thus Sweden and Norway took last year 1,156,882 tons, against 1,135,109 tons in 1875; Denmark, 777,297 tons, against 749,399 tons; Holland, 478,993 tons, against 455,964 tons; Spain, 762,031 tons, against 693,196 tons; Italy, 1,226,205 tons, against 1,006,453 tons; Turkey, 294,214 tons, against 243,466 tons; Egypt, 543,668 tons, against 533,492 tons; and British India, 750,182 tons, against 615,345 tons. There can be no doubt we fancy that low prices had something to do with the increased foreign demand generally observable last year. Thus in 1872 we sent abroad, as will be seen on reference to the tables previously given, 13,198,494 tons of coal, valued at 10,442,321; in 1873 the corresponding exports sank to 12,632,333 tons, the value rising to 13,205,818. In 1874, 1875, and 1876 the value of our coal exports gradually declined, and the quantity of coal exported increased almost as steadily, if, indeed, not quite as steadily. The great general advance in our coal exports during the past decade is not a little remarkable.

BRISTOL MINING SCHOOL.—In the recent Government examination held at Cardiff on the 9th, 10th, and 11th inst., for certificates of competency as mine managers, the following engineers, who are or have been students in the Bristol Mining School, obtained certificates:—Mr. Daniel Thomas, Gelli, Ystrad-y-fodwg; Mr. Daniel Williams, Llanelli; Mr. E. C. Williams, Hirwain.

ROCK-BORING MACHINERY.—We understand that the Foxdale Mining Company and the Ballaughish Mining Company are about to use rock-boring machinery, with the view of greatly accelerating their mining operations. The air-compressing and other machinery is to be supplied by the well-known Sandicroft Foundry Company, while for both of these mines the Darlington Rock-Borer has been selected. Under the direction of the eminent mining firm who manage the two mines in question it may reasonably be expected, as it certainly is to be ardently desired, that the use of these powerful appliances will be attended by the success that their introduction into these extensive undertakings so well deserve. We the more gladly notice the matter because mining generally under its present conditions in this country is undoubtedly much in need of any such important aid in the way of saving time or money that able men of spirit and enterprise may be able to bring to bear upon it.

NEW ZEALAND.—A letter from Wellington (Nov. 15) says that the gold mining interest seems to be reviving all over the colony. At Auckland and Otago the yield from the quartz mining operations has considerably increased of late; and, although the newly-opened alluvial diggings at the Kumara, on the west coast of the southern island, are unable to satisfy the great rush of expectant diggers, they are, notwithstanding, likely to support a very considerable population for some time to come.

COAL AND IRON IN THE UNITED STATES.—The extent of railroad in operation in the United States at the commencement of 1877 was estimated at 80,435 miles, as compared with 77,311 miles at the commencement of 1876. It follows that 3124 miles of railroad were opened in the United States in 1876. In 1875 new lines were only opened in the United States to the aggregate extent of 1905 miles, so that there was a sensible re-vival last year in the work of railroad construction in the United States, and the demand for railroad iron must have rather materially improved in consequence. The chief engineer of the Erie Railway Company has prepared a long statement in respect of improvements required to be carried out in the track, &c., of that system, and which would, he thinks, have the effect of enabling the company to earn a larger revenue at a greatly reduced cost. During the past year the Lake Shore and Michigan Southern Railroad Company substituted 10,500 tons of steel rails for iron rails upon its system. The aggregate production of anthracite and bituminous coal in Pennsylvania to December 23

last year amounted to 21,888,275 tons, as compared with 23,574,175 tons in the corresponding period of 1875, showing a decrease of 1,785,940 tons last year.

THE AMERICAN SLATE TRADE.—We learn from New York that the slate business in the Lehigh Valley never had a better outlet than at the present time. The export of slate to foreign countries is increasing. From the port of New York large shipments were made between Dec. 5 and 16. During the time mentioned there were shipped to England, Ireland, and Scotland 2143 cases of school slate and 515 tons of roofing slate. Taking that as an average shipper for the year, we have 47,717 cases of school slate and 10,748 tons of roofing slate, equal to about 3,2238 square feet, and this vast amount sent to the British Isles alone, from whose extensive quarries kinds of slate were some years ago shipped to almost every nation in Europe. Should this foreign demand continue to increase in proportion it has for the last three years it will absorb the square of slate and every case of school slate that can be produced in the United States with the present facilities. This foreign demand will, therefore, necessitate a largely increased production for supply of the home trade.

EXPORTS OF STEAM-ENGINES.—The value of the steam-engines exported from the United Kingdom in December was 119,675, compared with 164,796 in December, 1875, and 256,287 in December, 1874. For the whole of 1876 the value of our steam-engine exports was 1,937,579, as compared with 2,631,332, for the whole of 1875, and 3,255,685, for the whole of 1874. The decrease in the demand for our steam-engines (the expression including also rail-locomotives) appears to have been very general last year. The value of the steam-engines exported to Russia last year was 147,886, against 333,102, in 1875; to Germany, 89,182, against 231,032; to Italy, 151,319, against 170,688; to British India, 247,908, against 436,450; and to Australia, 209,561, against 233,399. It is fair to add that the value of the steam-engines exported to France increased from 22,044 in 1875 to 31,892 in 1876. In the case of Spain there was also an advance from 74,879, 85,970; in the case of Egypt from 20,197 to 33,324; and in the case of Brazil from 66,417 to 108,686.

STEAM-BOILER EXPLOSIONS.—In the Judicial Committee of Privy Council on Tuesday, before Sir J. Colville, Sir B. Peacock, Sir R. Collier, their lordships were engaged the whole day in hearing an application for the prolongation of the patent granted to John Smith, engineer, for improvements in furnaces and boilers to prevent explosions, by the National Boiler Insurance Company, assignees of the patent, having offices at Finsbury and Manchester. Mr. Ashton, Q.C., and Mr. Macrory were for the petitioners; Mr. G. Q.C., M.P., and Mr. C. Bowen represented the Crown. Mr. Bramwell, the well known civil engineer, and other gentlemen gave evidence in support of the application. It was alleged that the invention was a great public benefit by an improvement in a fusible plug made use of to prevent danger by the deficiency of water. In ten years 82 explosions had occurred through over-heating, and 87 persons had been killed and 80 injured, besides considerable property damage. No accident had happened where the fusible plug of the application had been used. Until the last four years the double core plug had not been much purchased, and the remuneration had, it was urged, been inadequate for the great benefit conferred on the public. Barnes Peacock gave judgement at some length. Their lordships refused the application to prolong the patent, on the ground that sufficient remuneration had been received.

REPORT FROM CORNWALL.

JAN. 18.—Dolcoath account supplies us with our chief subject comment this week, and it shows very clearly the state to which our tin mines have been reduced by the low prices ruling, when we find that the three months profit on a sale of 290 $\frac{1}{2}$ tons of black tin was only 161 $\frac{1}{2}$ l., and that it was seriously debated whether a dividend should be declared at all. That the dividend declared had been earned was clear, and that under such circumstances it was wise to declare it we held to be equally certain, not merely for the present advantage of the adventurers in Dolcoath, but for the sake of miners in general, upon which the announcement that Dolcoath had suspended dividends could not fail to have a most seriously depressing effect. Dolcoath is one of the sheet-anchors of mining enterprise, and it is very satisfactory to find that the old mine is looking well as ever.

We do not concur in all that Mr. Rule says or does, but we do go fully with him or not it is quite evident that he does an immense amount of good in provoking investigation, and rousing mining men out of the grooves in which they have been for the last so long intent to work. And when he recommended that a mine as Dolcoath should smelt its own tin we do thoroughly agree with him. The process is exceedingly simple, and if centuries ago the streams on the moors could smelt their produce with their rule appliances surely Dolcoath could do it now. There is a theory that different qualities and productions of black tin require to be mixed to give a satisfactory result in smelting, but it is a theory that no one ever heard outside smelting circles, and on the face of it is not at all acceptable; in fact, we regard it merely as a smelting "boogey." The direct advantage which the large mines like Dolcoath and Tintagel, Carn Brea, East Pool, and their neighbours would gain in smelting their own tin would be that they would put in their pockets ordinary smelting profits. To dispose of the metal they would have to watch the markets as the smelters do now, and so far as outside can see in the long run very profitably. And this would require a certain amount of floating capital. We gather from the Dolcoath report that the actual cost to that mine of "stocking" tin during the last 12 months has been 1000 $\frac{1}{2}$ l., which has had to be paid to the bank in interest and commission, holding the tin in store instead of turning it into money having required the bank account to be enormously overdrawn. Hence Mr. Holden's idea that it would have been better to wipe off this debt than declare a dividend. However, if the standards go up, as Capt. Josiah Thomas appears to hold, they will do ere long, the extra profit derived on the tin held over will easily wipe this off.

Nothing could be more satisfactory than the account given of the boring machine, and the effect of its introduction on the future fortunes of the mine will be incalculable. Originally all that was hoped for was more speedy development. Now we are told that not only can the drivages and sinkings be carried on far more speedily, but at a cheaper rate—that not only is time economised, but money at labour. Hitherto Dolcoath has been in leading strings in this matter. It is now walking alone. Capt. Thomas in the course of his speech said:—"The boring machine contract was over, the six months term having expired about three weeks since. The patentees had returned to Lancashire, and the machine was now being worked by their own men. During the six months they had been driving rather more than three times as fast as by hand labour, and the cost of it, if held in their own hands, would not be so much as hand labour 5 $\frac{1}{2}$ per fathom. There was no doubt that this was a vast advantage in opening out the mine. If they merely drove one it would perhaps, make much difference, but if they could drive all their end three times as fast as by hand labour, and sink the shaft at the same rate, it was plain that in time they would be able to more than double their returns." He believed that the success of the boring machine had been fully established, for it could not be more severely tried than it had been in Dolcoath. It was the deepest mine in the county, and, perhaps, about the hardest ground, and if the machine succeeded there it would succeed anywhere."

Dolcoath has been fortunate in regard to the floods, and, thanks to the energetic supervision and excellent management, Capt. Thomas was able to say that during the floods they had been able to let the mine drained to the bottom, and the only inconvenience experienced was that arising out of the extra cost of pumping, which would amount to 100 $\frac{1}{2}$ l. a month. But this was not much when compared with the expense to which other mines had been put. If the engines and pitwork had not been in first-rate condition they would not have been able to keep the mine drained as they

in the summer they paid a great deal of attention to the adits, pits, and machinery, and thus far they had been able to pull through successfully.

Cornish machinery and inventors find their way to all parts of the world. Mr. Charles Oxland, son of Dr. Oxland, inventor with Mr. Hocking of the well-known Oxland and Hocking's calciner, has just gone to South America to superintend the erection and setting to work of calciners which have been forwarded to silver mines there. The threatened fall in the tin standard has, fortunately, not been realised, and the outlook is decidedly more cheering. There has also been an improvement in the weather, and the flooding rains appear to be gradually passing away.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Jan. 18.—It cannot be correctly reported that the prices of finished iron made in Staffordshire have strengthened as the result of the Quarterly Meetings transactions, or that consumers have satisfied themselves that their wisdom will consist in at once entering the market and securing forward requirements. The general holding off by the consumers of finished iron, observable at Quarter-day, is still noticeable where makers will not yield to their requirements. These are not invariably unreasonable, but where the iron is not required at once buyers continue to make offers which makers reject with promptitude. Makers generally are doing their best to meet customers' views. The exceptions relate to high-class iron of heavy dimensions, which is strong upon the orthodox basis of 9d. per ton for bars of a few leading firms. The considerable reduction of 30s. per ton in best thin sheets has not at present led to any very marked increased demand. Common finished iron is much offered, but sales are not numerous. There are such quotations as 9d. per ton for merchant sheets delivered in London, which is unprecedentedly low for Staffordshire sheets, since the carriage to London is 17s. 6d. But such terms are not yet at all general; they are the exception. Still they weaken the market. Pig-iron is fairly sold, and the demand has encouraged the Earl of Dudley and Messrs. Cochrane each to put in a furnace at Brierley Hill. Other firms are preparing to blow in furnaces which are now out. Quotations are for the present strong. Large quantities have, however, been sold at cheap rates. The sales which the proprietor of the Spring Vale furnaces (Mr. Alfred Hickman) had booked before the Quarterly Meetings began represented over four months' output at 1000 tons a week. Mr. Hickman's quotations are under those of firms who ceased to make at a much higher figure than those which he is now accepting for a similar quality. Coal is in no better request, either for domestic use or for consumption at the finished ironworks; on blast-furnace account there is a little more business doing, and the prospects are in that department brightening.

The water is steadily rising in the pits in the Bilston district. A week ago it had risen 140 ft. in the Sandy Gay pit, and 112 ft. in the Stow Heath pits, since the pumps at those two places were stopped, and what is happening at those points is happening throughout a considerable underground area thereabouts. A serious flooding of neighbouring collieries now at work is inevitable. There is no probability of the petition from the Bilston district being received by the Mines Drainage Commissioners as valid for the purposes designed by the petitioners.

Local colliery property does not increase in value; 20s. shares of the Hunshead Company, on which 10s. have been paid, have just changed hands at 2s. discount; Cannock and Huntington, on which only 4s. has yet been paid, are offered at 1s. discount. The Ivy House and Northwood Colliery shares of 20s., with 15s. paid, are easy at 2s. discount. Iron company shares are not much more in favour since the 10s. paid-up shares of John Bagnall and Sons are to be had at 4s., but only 3s. is offered. The Chilington Company's shares have been bought at 4s. Such concerns as Muntz Metal are in growing favour again. On Monday there were sales of Muntz at 3s. prem.

Last week's slight improvement in the coal trade of North Staffordshire continues; pigs are fairly sold, but the furnaces in blast are few.

Finished iron is in a little better request, but at unimproved rates.

REPORT FROM THE NORTH OF ENGLAND.

Jan. 17.—The Coal Trade of Durham and Northumberland, while yet hampered and harassed by many disquieting influences, presents some hopeful and pleasing features. Not the least of these is the attempt now being made to substitute for the arbitration of force, or the uncertain or rather unsatisfactory system of open arbitration, a self-adjusting sliding scale that will regulate wages without calling in any outsider, or involving the question of "a fair day's wage for a fair day's work" in any perplexity. Negotiations have been going on for some time between the joint committee of coalowners on the one hand, and the joint committee of miners on the other with this end in view. Most of the necessary details have already been agreed upon. It has been decided that the basis of all fluctuations of wages under the sliding scale system shall be the selling price of coal at the pit's mouth, that the arrangement—which, of course, partakes largely of the character of an experiment—shall extend over two years, and that neither wages nor prices shall be disturbed oftener than every four months.

But upon one point, and that the most essential to the success of the negotiations, there is up to the present time a complete lack of agreement. The parties have not yet determined mutually on the relation that wages shall bear to selling price; the owners propose a minimum of 4s. 8d. per day, and the miners object to a lower minimum than 5s. per day. Here, therefore, dead lock has been reached. The wages now paid to hewers in the county of Durham are at the rate of 5s. 0d. per day, where they were left by Mr. Shaw Lefevre, M.P., last autumn, the realised selling price of all descriptions of coal vested in the county having then been ascertained to be 1s. 8d. per ton. There is much reason to believe that coals have suffered a further drop since that time, probably to the extent of 3s. or 4s. per ton, and the owners naturally and reasonably contend that if wages are to be governed by prices as the only standard now available, and if Mr. Lefevre established by his award a just relation of wages to prices, the miners are entitled to another reduction at the present time, which would just about leave their wages at the level proposed to be established as a minimum by the owners. On the other hand, the miners object to a minimum that would render their wages liable to a further reduction now or at any future time, and that, again, is a line of argument that can easily be understood when it is remembered that within the last two years the wages of Durham miners have been reduced 1s. 3s. per day, or 15s. to 1s. 8s. per week.

There is another important feature of this case that presents itself for consideration. The wages of miners may be nominally 4s. 8d. or 5s. per day, as the case may be, but that does not represent either of these allowances for six days per week. As a matter of fact there are very few miners in Durham now working longer than eight to nine days in the fortnight, and some of them even less than that, and the sum total of their earnings at the expiration of the fortnight is thus considerably less than it would be, if, like other labour, they had the opportunity of working six days per week. A number of collieries have been recently laid off altogether. Many men are without employment altogether, and working only by snatches and in a hand-to-mouth fashion. The price of coal does not improve, nor is there any better prospect in reference to the demand. On the contrary, the continued depression may be fully accounted for by the fact that the mineral traffic receipts of the North-Eastern Railway for last week alone were nearly 70000, less than the receipts for the corresponding week in 1875.

The "Billy Fairplay" system has been got into fairly good order now, some local details having been arranged at different collieries to the mutual satisfaction of employers and employed. The system is much too new to enable us to offer as yet any opinion on its results, but the general impression is that it will be found to introduce a pretty considerable economy in respect of the greater quantity of round coal produced. At a meeting of the joint committee in the Northumberland coal trade, held in Newcastle last Saturday, it was explained that the employers had made arrangements for meeting the wishes of their men by weighing every tub,

instead of only one in four as originally intended. It is intended to lay in the Delaval Benwell pit, on account of a large accumulation of water that renders the work of the miners difficult and even dangerous. At Shotton Colliery, in Durham, the owners have recommenced working, after getting the miners to agree to a reduction equivalent to 7 per cent.

The Iron Trade is without change. Very little business was done on 'Change at Middlesborough this week, and prices rule about the same as seven days ago, with a slight turn in favour of buyers. The finished iron trade remains dull.

The liquidators of the West Hartlepool Iron Company have issued a statement of accounts showing the position of the liquidation to the end of 1876. After setting forth that all the unpaid capital had been paid-up they proceed to say that, according to the terms of agreement between the company and the vendor, the company had, within two years of its formation, the option of purchasing about 25 acres of land adjoining the blast-furnaces, for tipping purposes. We were advised by the committee of creditors that the purchase of this land would materially improve the value of the property when it came to be realised. We, therefore, exercised the option to purchase. The purchase will shortly be completed, and will dispose of a large portion of the cash now in hand. At an early stage in the liquidation we disposed of the bulk of the stock, stores, and loose materials, in order, as far as possible, to avoid the loss of a falling market. The serious financial difficulties experienced in this district during the past year have prevented purchasers for the works coming forward. We trust that a revival in the staple trades of the district may speedily bring a customer for the property. Until the property is realised we cannot possibly say what further dividend the creditors will receive. We regret that we cannot hold out any hope of the creditors being paid in full. There is, consequently, no probability of any return of capital to the shareholders.

REPORT FROM THE FOREST OF DEAN.

Jan. 18.—We understand Messrs. Richard Thomas and Co., of Lydbrook, and Lydney Iron and Tin-plate Works, in addition to their Morrell Hill Colliery, have lately purchased the following three gales of coal—Lydbrook Deep Level, The Pluds, and Birch Grove; this additional coal property will enable this firm to supply the wants of their extensive works for the next 100 years, all of which can be won by free drainage levels. Since their possession of Lydney Works this firm have improved and renovated the whole of the plant, and it is estimated that when trade revives they will be in a position to turn out upwards of 3500 boxes of finished tin and terne plates weekly.

We regret to say owing to the high prices asked by the colliery proprietors of the district the coal trade was never known in so prostrate a condition, the principal cause is the fictitiously high cost of wages, which the miners' agent lately stated were 30 per cent. in time and money above the rate of 1870, the consequence is the colliers generally are only working about half time. Surely it would be better for all concerned to reduce prices of coal and wages to a point that would enable this district to compete with its neighbours.

TRADE OF THE TYNE AND WEAR.

Jan. 18.—A large number of vessels have sailed during the past few days; the weather having moderated the navigation is again open. There are very few orders in the market at present, the disturbed state of political affairs in the East having a very injurious effect on all the trades of the district. Gas contracts have now been made for the whole of the present year, the latest prices 8s. 6d. per ton. Sinking operations will, it is expected, be renewed at Whitburn shortly. An attempt will be made to sink one of the shafts where the failure occurred last year, owing to the great influx of water, by adopting the Belgian method. Arrangements have been made to commence this shortly, and as several shafts have been sunk on the Continent under most difficult circumstances, it is hoped that the attempt will prove successful. Whether the circumstances are similar in both cases we are not aware. On the Belgian system the quantity of water is of no consequence. At Whitburn the extreme hardness of the limestone will cause the progress at any rate to be slow. The excessive fall of rain has increased considerably the water going to the pumping engines at the collieries in Durham and Northumberland, but so far the water has been kept out of the workings in most cases. At the Delaval pit, Benwell, the water has gained considerably, and at present it is likely that the pit will be laid off in consequence. The Hartford Scott Collieries, belonging to the Cramlington Coal Company, has been laid off for the present, owing to difficulties in connection with the introduction of the new system of working and the dull state of the trade. The men at the Alexandra pit, Rainton, one of the collieries of Earl Vane, have received notice to leave after the usual 14 days, and also the men at the Sitch pit have got a similar notice. One of the shifts at Ca-le Elen has been stopped also. Working at Shotton Colliery was resumed on Monday, the men having agreed to a reduction of about 7 per cent. on the late rates.

The main topic of interest in connection with the Durham collieries at present is the dispute between the Coalmasters Association and the Executive of the Miners Union respecting the secession of the deputies from the Miners Union. Those deputies who have left the Miners Union have not been subjected to the last reduction in wages by the award of Mr. Shaw Lefevre, and thus two rates of wages are paid to the same class of men. The matter has been brought before the executive of the Coalowners Association, and much discussion has taken place on the subject. The miners have proposed that the dispute should be settled by arbitration, but the masters do not admit that it is a fit subject for arbitration.

Busts of Hepburn and Jude, the pioneers of Union in these countries, have been completed, and they will be placed in the new Miners' Hall, lately erected in Durham. The busts have been executed by Mr. Wm. Houston, of Newcastle, and are excellent likenesses, the material being Carnarvon marble.

WORKING THE COAL UNDER THE SEA ON THE COAST OF DURHAM AND NORTHUMBERLAND.—This important subject has often been noticed in the Journal, and the writers on the subject truly remark that it has only as yet been treated in a suggestive and not in an exhaustive manner. So far as we are aware, the coal so far has been worked under the sea in direct connection with the workings under the land. Drifts—that is, a pair—are driven out from the workings under the land some distance, and thus a large barrier is left between the sea and land workings, the design being to separate the two systems, should water from the sea be met with, by inserting dams in these drifts, which are the only communications between the two systems of workings. It has been contended by many that the sea workings should be entirely separated from the land workings, and good sound reasons are given for this view. It may, perhaps, be argued that there is little probability of the sea getting access to the workings, but it will hardly be asserted that this is impossible. The workings under the sea on the West Coast have been in more than one instance inundated by water from the sea, and this it must be admitted is a possibility on the East Coast. True it is that in the latter case the coal seams will, near the coast line at all events, be found at a great depth from the bed of the ocean, but we do not possess any knowledge of the position of these beds further out at sea; they may be raised up by upthrust faults, or may crop out rapidly towards the sea bed. There may be faults intersecting the strata in a nearly vertical position, and fissures may exist sufficient to convey the water down to the workings. It is scarcely necessary to remark that should the sea ever gain access to these workings the whole system of workings connected will probably be entirely lost. Little confidence can be placed in dams inserted in positions such as we have pointed out. The dams themselves are very difficult to make water-tight, and if this is ever effected the strata above or below, or generally both, leak to an alarming extent. Any extensive inundation of mines by water ought to be most rigidly avoided if it is possible to do so, as when this does occur the water is very rarely removed; it generally remains there a standing menace or bugbear to the mining community. The work-

ing of the land and sea coal in separate panels appears to be the only safe mode of procedure in those cases; at any rate, the full discussion of such an important question is very desirable now that the working of the coals under the German Ocean may be expected to be undertaken on a large scale during the next few years.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

Jan. 18.—As will be seen by the figures quoted below, clearances of iron have of late considerably fallen off, and the position of the trade appears to go from bad to worse. A notable event of the week has been the reply of Mr. Crawshay to a deputation of his late employees, who met and asked him to resume operations. Under present circumstances, Mr. Crawshay points out, with iron rails selling at 5s. 10d. per ton, it is impossible to make iron at a profit, and, consequently, Cyfarthfa works will remain closed. He remarked, however, that as soon as the price rose to 6s. the men might look forward to a speedy commencement. It is stated that the works are maintained in a condition ready to start at any moment, and that a large quantity of coal, sufficient to last the works for years, has been stocked. As before indicated, rails are in exceedingly slow request, while bars are, if possible, worse off. Pig-iron is materially unchanged. At the steel works there is reported to be a little more business doing. During last month only 2797 tons in the previous month; Cardiff 1634, against 5865 tons. The principal shipments were to Aarburg, Digby, N.S., Barcelona, and Santos. At Tredegar business is fairly active at the ironworks, and it is stated that a portion of the Abersychan works will probably be re-opened. There is no material change in the Tin-Plate Trade, and it is understood that no meeting for the district will be held this quarter. At the Meliagriffith tin works the men have resumed their work at a reduction.

If any argument were needed of the increasing favour with which Welsh coal is regarded abroad I would point to the returns of foreign sales during the past three years, which are as follows:—Cardiff, 1874, 2,924,638 tons; 1875, 2,800,510 tons; 1876, 3,509,174 tons; Swansea, 582,723, 550,572, and 632,759 tons respectively; Newport, 374,171, 327,730, and 566,135 tons; and Llanelli, 96,974, 85,435, and 80,047 tons respectively. It will be seen by these figures that Newport during last year has made a rise of about 80 per cent. over the previous year. Also last year the quantity of coal carried by rail to London shows a large increase over the returns for the previous year. During the month of December last Newport cleared 45,951 tons of coal foreign, against 41,064 tons in the corresponding week of last year; Cardiff, 230,184, against 291,841 tons; Swansea, 54,443, against 45,915 tons; and Llanelli, 3570, against 2726 tons. During the same period Newport shipped coastwise 66,048, against 64,908 tons; Cardiff, 56,009, against 71,677 tons; Swansea, 14,789, against 24,470 tons; and Llanelli, 4786, against 4641 tons. The position of the trade generally has changed very little since last report; prices remain stationary, but there is an upward tendency exhibited in freights, and should there be a certainty of war a rise in quotations may be confidently looked forward to. The Llanelli strike is now virtually at an end, about half the men having resumed work at a 5 per cent. reduction. The masters insisted on a 10 per cent. decrease at first. The colliers at Blaenavon, after breaking up the local "Union" there at Christmas, and dividing the funds, have again started three new lodges.

The Master of the Rolls had the case of the Ebbw Vale Steel, Iron, and Coal Company before him in the Chancery Division, on Monday. He was asked to give his opinion as to whether the company could reduce its nominal capital under the section of the Companies Act, 1867, the object being to pay dividends on the real and not on the nominal capital. The Master of the Rolls said he could not sanction the reduction, and the summons was dismissed.

The Swansea Bank (Limited) has declared a dividend of 7s. per cent. per annum for the last half-year. The business of the bank appears to be gradually increasing.

The result of the Artillery inquest was made known yesterday, when the jury returned a verdict that the explosion resulted from purely accidental causes. They added a rider to the verdict, however, to the effect that the workings should be examined daily before operations commenced.

SOUTH WALES MINING DISTRICT.—An examination for granting colliery managers' certificates of competency was held at the Town Hall, Cardiff, on January 9, 10, and 11, before the examiners appointed by the board—Messrs. W. Adams, C.E., Cardiff; T. Foster Brown, C.E., Cardiff; E. Daniel, C.E., Swansea; and the secretary, Mr. Charles Henry James, Merthyr Tydfil. Fifty-four candidates presented themselves for examination, and the following gentlemen will in due course receive certificates of competency:—E. Bevan, Maesteg; D. E. Davies, Nelson; D. Evans, Dowlais; J. Griffiths, Ferndale; S. Griffiths, Cymmer; J. H. Dley, Aberaman; S. R. Hopkins, Hirwain; J. Hughes, Glyncorrwg; D. W. Jones, Hirwain; Henry Jones, Ystrad; Isaac Jones, Merthyr Tydfil; J. Carlos Jones, Nantmawr; T. Jones, Swansea; P. A. Kent, Swansea; W. Lewis, Pandy; M. Llewellyn, Treherbert; R. Llewellyn, Aberdare; J. Miles, Pentra; J. G. Morris, Crickhowell; W. Morris, Gower-road; W. Oswald, New Tredegar; A. L. Pearce, Gower-road; N. Phillips, Blaenavon; R. Phillips, Danau; T. Richards, Hirwain; A. Richards, Pandy; J. Salathiel, Ystrad; J. Straw, Chesterfield; R. C. Strelley, Ebbw Vale; T. F. Tallis, Treorkey; A. Thomas, Ynysfaig Colliery; D. Thomas, Gelli Colliery; H. G. Thomas, Neath Abbey; J. D. Thomas, Troedyrhw Colliery; W. E. Thomas, Rhymney; W. Thomas, Llanelli; W. Webb, Merthyr Tydfil; Daniel Williams, Llanelli; E. C. Williams, Hirwain; W. W. Williams, Bristol; J. Rosser, Tondu.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Jan. 18.—At the lead mines business goes along somewhat languidly, and there does not appear to be any increase in the output, which has fallen off considerably of late. The collieries are by no means active, although most of them are doing a steady business; but the demand is very moderate for the season, and so far as prices are advancing as they usually do in the beginning of the year, they are more likely to decline, seeing that coal is becoming quite a drug, not only in the London but in other markets as well. The Iron Trade of Derbyshire is without alteration, the make of pig keeping up very well. All hope of the working collier becoming a colliery proprietor appears to be abandoned by those enthusiasts who invested money in the Shirland Colliery, in the expectation that it would become a great property, not only benefiting themselves but their heirs, administrators, assigns, &c. It has turned out a most disastrous failure, so that what was valued by an eminent mining engineer in June, 1875, at 73,000, has just been sold for 11,000. The Miners' Association loses about 31,000, and several miners sums varying from 5s. upwards by the failure, which has been a most decided one. A few persons have evidently made a good thing out of it; and it could not fail to be of interest were the leaders of the Association to publish all the facts in their possession relative to the transaction.

There has been a decided improvement in several branches of the Sheffield trades, and the year looks, so far, more promising than the close of the last one did. Makers of Bessemer rails are likely to have a busy time of it, although prices have not improved; but there is not much doing in ordinary iron rails, excepting in light ones for colliery purposes. The leading malleable house, Crowley and Co., have been doing very well, the castings having a high reputation in all our markets for their tenacity, sharpness, and finish, as well as for the moderate price they can be produced at, so that they have superseded both brass and steel in many articles that at one time were made of those more expensive materials. Australia and other of our colonies are very good customers for machinery and tools, whilst some of the houses engaged in various classes of cutlery are more favourably off for orders, although there is still plenty of room for improvement. In South Yorkshire most of the foundries are favourably off for business, air-compressing engines and machinery being put down at several collieries. Coal-cutting machines, on Hurd and Simpson's patent, are also being made for

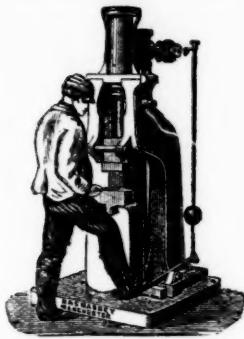
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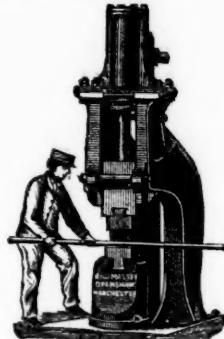
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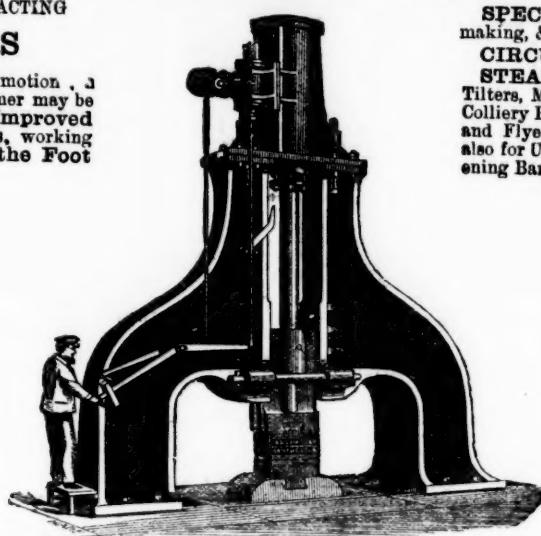
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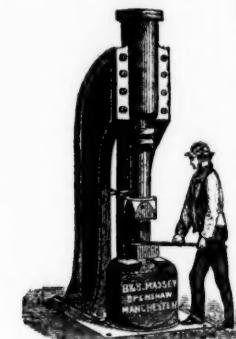
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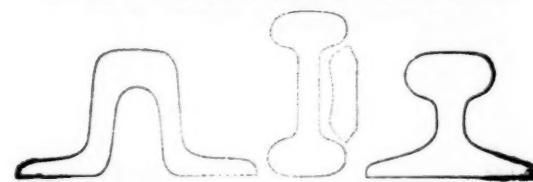
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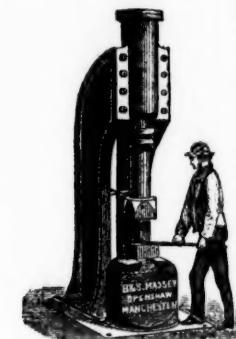
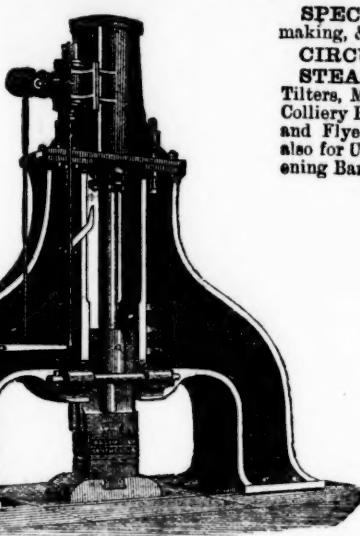
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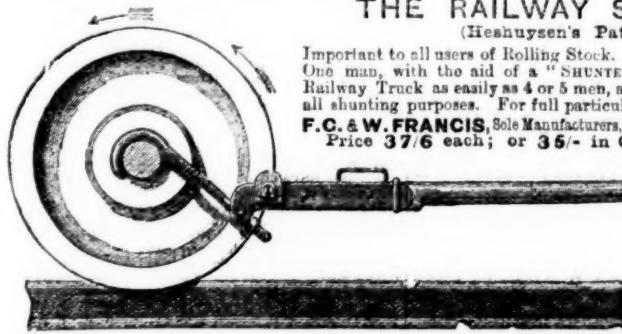
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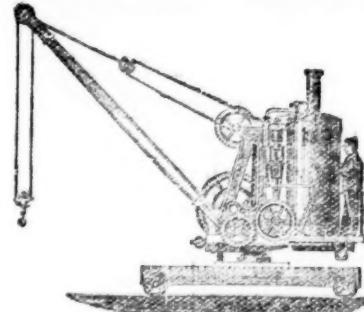
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1500 Alderley Edge, c, Cheshire*		10 0 0	—	—	12 11 8	0 5 0	Jan. 18	
15000 Balmynthe, i, Wendron (4000 to is.)		1 0 0	—	—	0 2 0	0 2 0	Nov. 18	
30000 Bampfylde, c, t, m.s., Devon*		1 0 0	—	15% 13% 13%	0 2 0	0 2 0	June 18	
40000 Bettsack, t, c, St. Just*		119 5 0	50	25 30	619 15 0	0 5 0	Aug. 18	
4700 Brookwood, c, Buckfastleigh		1 18 0	—	25% 24% 24%	3 16 0	0 2 0	Nov. 18	
2000 Bryn Alyn, i, Denbigh. (10, sh.)		8 0 0	—	8% 8% 8%	0 7 0	0 7 0	Jan. 18	
8440 Clogau, c, Newlyn		6 6 0	—	6% 6% 6%	4 16 3	0 12 6	Oct. 18	
61000 Caswell, i, Cumberland		2 10 0	—	—	1 7 6	0 2 0	Aug. 18	
10000 Carn Brea, c, t, Illogan		35 0 0	40	36 33	338 0	0 1 0	Feb. 18	
6000 Cash, & Jane, i, Penrhynladrath		5 0 0	—	—	0 7 6	0 7 6	June 18	
2450 Cook's Kitchen, t, Illogan		21 9 9	—	44% 44%	11 17 0	0 7 6	Jan. 18	
10240 Devon Gr. Consols, c, Tavistock*		1 0 0	—	5% 4% 5%	118 10 0	0 12 0	May 18	
4294 Dolcoath, c, t, Camborne		10 14 10	40	36 38	1 1 1 3	0 7 6	Jan. 18	
6500 Drake Wall, t, c, Calstock		6 0 0	—	3% 3% 3%	0 2 0	0 2 0	July 18	
10000 East Balesiden, t, Sancreed*		1 0 0	—	—	0 2 1 11 0	0 5 0	Feb. 18	
6144 East Cardigan, c, St. Cleer		3 14 6	—	1% 1% 1%	14 19 0	0 2 0	Oct. 18	
300 East Darren, i, Cardiganshire		32 0 0	—	—	235 10 0	1 0 0	Aug. 18	
6400 East Pool, t, Illogan		7 9 9	—	11% 11% 11%	14 18 3	0 2 0	Dec. 18	
1906 East Wheal Lovell, i, Wendron*		7 19 0	3	2 3	20 7 6	0 7 6	Oct. 18	
2800 Foxdale, i, Isle of Man*		28 0 0	—	—	82 5 0	0 10 0	F.b. 18	
40000 Glasgow Carr., c* (30,000 £p, 10,000 15s. p.)		—	—	—	0 12 4	0 0 6	Mar. 18	
15000 Great Dyllyne, i, Montgomeryshire		4 0 0	—	5%	0 2 6	0 2 6	Apr. 18	
15000 Great Laxey, t, Isle of Man*		4 0 0	—	—	0 1 6	0 1 6	May 18	
615 Great Retallack, i, n. Perranzabuloe		5 18 6	—	1% 1% 1%	0 1 6	0 1 6	May 18	
25000 Great West Van, i, Cardigan		2 0 0	—	—	0 2 0	0 1 0	Aug. 18	
5808 Great Wheal Vor, t, c, Heston*		41 12 6	—	3% 3% 3%	15 19 6	0 2 0	June 18	
6400 Green Hethr., t, Durham		0 6 0	—	—	1 12 0	0 4 0	Oct. 18	
90000 Grogwinion, i, Cardigan*		2 0 0	—	5% 5% 5%	0 8 0	0 2 0	Sept. 18	
9820 Guinstone (Clitters), t, c, Illogan		8 5 0	—	2% 2% 2%	0 13 9	0 1 0	Oct. 18	
1024 Herodstow, t, near Liskeard*		9 10 0	—	2% 2% 2%	62 5 0	0 15 0	Oct. 18	
18000 Hindington Down, t, Calstock*		1 0 0	—	—	0 1 0	0 1 0	Nov. 18	
25000 Killaloe, c, Tipperary		1 0 0	—	—	0 3 11% 0	0 6 0	Mar. 18	
400 Lislurine, i, Cardiganshire		18 15 0	70	65 70	579 10 0	1 0 0	Jan. 18	
14000 Llanidloes, i, Montgomery		3 0 0	—	1% 2% 2%	0 4 6	0 1 6	Nov. 18	
5120 Lovell, t, Wendron		0 10 0	—	—	0 17 6	0 1 6	Jan. 18	
9000 Mark Valley, c, Linkinhorne		5 0 6	—	1% 1% 1%	0 15 0	0 2 0	Jan. 18	
11000 Melindur Valley, t, Cardigan		3 0 0	—	1% 1% 1%	0 7 2	0 3 7	Jan. 18	
9000 Minera Mining Co., t, Wrexham*		6 0 0	—	25% 17% 20	66 18 2	0 8 0	Feb. 18	
30000 Mining Co. of Ireland, d, c, t*		7 0 0	—	5% 5% 5%	23 11 6	0 8 3	Jan. 18	
512 North Busy, c, Chancwater		3 9 6	—	—	0 10 0	0 10 0	Dec. 18	
10189 North Levant, t, c, St. Just*		2 10 0	—	—	1 7 6	0 2 6	Dec. 18	
2000 Old Treburret		12 2 0	—	—	4 13 0	0 12 0	Sept. 18	
27850 Old Treburret, * ^t (s. 10 per ct. pref.)		1 0 0	—	—	0 9 0	0 9 0	Feb. 18	
5000 Penhale, t, St. Agnes		0 10 0	—	3% 3% 3%	0 1 4% 0	0 6 0	July 18	
45783 Penstruhul, t, c, Gwenmap...		3 0 0	—	2% 2% 2%	3 13 6	0 2 0	July 18	
12300 Phoenix, W. Phoenix, t, c, Link,*		2 0 0	—	5% 5% 5%	2 2 8	0 8 0	Nov. 18	
12000 Prince Patrick, * ^t , Holywell		3 4 9	—	4% 4% 4%	2 9 6	0 4 0	Nov. 18	
1120 Providence, t, Lelant*		18 6 7	—	2% 2% 2%	104 12 6	0 10 0	Sept. 18	
2000 Roman Gravels, t, Salop*		7 10 0	—	14% 13% 14%	6 13 0	0 8 6	Oct. 18	
512 South Cadron, c, St. Cleer		1 5 0	—	11% 11% 11%	731 0	0 2 0	Oct. 18	
6123 South Conduorow, t, c, Camborne...		6 5 6	—	6% 6% 6%	2 2 0	0 3 6	Oct. 18	
10400 St. Os. Fr. Patrick, * ^t (8000 sh. issued)		1 0 0	—	—	0 1 0	0 1 0	Oct. 18	
12000 Tankerville, t, Salop*		6 0 0	—	8% 8% 9%	4 17 0	0 5 0	Dec. 18	
6000 Tincroft, c, t, Pool, Illogan		9 0 0	21	20 22	49 18 6	0 5 0	Nov. 18	
15000 Van, t, Llanidloes*		4 5 0	40	38 40	19 19 6	0 18 0	Dec. 18	
8000 W. Chiverton, t, Perranzabuloe*		12 10 0	19% 18	19 19	55 0	0 10 0	Jan. 18	
1783 West Poldice, St. Day		10 0 0	—	13% 11 13	1 19 0	0 4 0	July 18	
512 West Illogan, c, Redruth		95 10 0	64	60 62 12	17 15 0	0 1 0	Dec. 18	
2648 West 4th French, t, Illogan		27 13 9	—	5% 4% 5%	8 12 6	0 5 0	Oct. 18	
12000 West Wye Valley, t, Montgomery		3 0 0	—	3% 3% 3%	0 8 0	0 3 0	Nov. 18	
612 Wheat Fasset, c, Illogan		17 2 8	—	20	12 14	638 10 0	1 10 0	Aug. 18
1024 Wheat Eliza Consols, t, St. Austell...		20 0 0	—	—	8 0 0	0 3 0	Oct. 18	
2044 Wheat Jane, t, Kew		23 10 0	—	2% 2% 2%	8 5 0	0 5 0	July 18	
4265 Wheat Katty, t, St. Agnes		5 4 6	—	3% 3% 3%	11 19 6	0 2 0	Dec. 18	
80 Wheat Owles, t, St. Just*		86 5 0	—	14% 13% 14%	522 10 0	4 4 0	Aug. 18	
6000 Wheat Prussia, t, Redruth		2 0 0	—	5% 5% 5%	0 3 0	0 2 0	Dec. 18	
25000 Wicklow, c, sw., t, Wicklow		28 10 0	2	1% 2%	52 9 0	0 2 0	Mar. 18	
10000 Wye Valley, t, Montgomery		3 0 0	—	6% 6% 6%	10 16 0	0 4 6	Oct. 18	

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25500 Alamillos, <i>l.</i> , Spain*†	2 0 0	2 16	2 21%	1 16 3	3 0	1 6	Oct. 1878
30000 Almada and Tirito Consol., <i>s.†</i>	1 0 0	3 3	3 1 1%	0 6 3	0 0	0 1 0	May 1878
20000 Australian, <i>c.</i> , South Australia*†	7 7 8	2 14	2 14	0 18 0	0 0	2 6	Aug. 1876
10000 Battle Mountain, <i>c.</i> (8240 part pd.)	8	—	—	0 10 0	0 0	10 0	Nov. 1872
15000 Birdseye Creek, <i>g.</i> , California*†	4 0 0	—	—	0 14 0	0 0	2 6	June 1874
12230 Burr, Burr., <i>c.</i> , So. Australia	5 0 0	—	—	70 0	0 0	0 10 0	Oct. 1877
20000 Cap Copper Mining, <i>s.</i> So. Africa.	7 0 0	40	39 40	26 15 0	1 0	9 0	Dec. 1874
40000 Cedar Creek, <i>g.</i> , California*†	5 0 0	—	—	0 5 0	0 0	2 6	June 1878
30000 Central American Association*†	0 18 6	—	—	0 6 0	0 0	1 0	July 1869
15000 Chicago, <i>s.</i> , Utah*†	10 0 0	6 1	5 6 6%	2 8 0	0 0	0 1 0	Nov. 1876
21000 Colorado Terrible, <i>s.†</i> , Colorado*†	5 0 0	1 14	1 14	0 13 6	0 0	0 6 0	Jan. 1875
10000 Copiapo, <i>c.</i> , Chili* (240 shares)	18 15 0	—	—	7 8 5	0 0	2 6	Jan. 1876
00000 Don Pedro North del Rey*†	0 18 0	—	—	2 5 9	0 0	2 0	Mar. 1872
23500 Eberhardt and Aurora, <i>s.</i> , Nevada*†	10 0 0	8 3	8 2 8%	1 8 0	0 0	0 3 0	Dec. 1878
30000 Emma, <i>s.</i> , Utah	20 0 0	—	—	3 12 0	0 0	0 6 0	Dec. 1872
70000 English and Australian, <i>c.</i> S. Aust.	2 10 0	1 14	1 14 1%	2 18 9	0 0	0 2 0	Mar. 1878
15000 Ferguson, <i>g.</i> , California*†	2 0 0	—	—	0 3 0	0 0	0 3 0	April 1872
30000 Flagstaff, <i>s.</i> , Utah*†	10 0 0	2 14	2 8 3%	4 2 0	0 0	0 5 0	July 1873
20000 Fortuna, <i>l.</i> , Spain*†	2 0 0	6 3	6 1 6%	8 2 6	0 0	0 6 8	Oct. 1876
35000 Frontino & Bolivia, <i>g.</i> , New Gran.*†	2 0 0	2	1 14 134	0 1 0	0 0	0 1 0	June 1876
30000 Gold Run, <i>hyd.</i>	1 0 0	—	—	0 2 4	0 0	0 4 0	Oct. 1872
62000 Kapunda Mining Co. Australia†	1 3 0	—	—	0 0 2	0 0	0 6 0	June 1873
15000 Lachance, <i>s.</i> , Utah	—	—	—	0 0 4	0 0	0 6 0	June 1873
15000 Linares, <i>l.</i> , Spain*†	—	—	—	0 0 4	0 0	0 6 0	June 1873
65000 London and California, <i>g.†</i>	3 0 0	6 1	6 6 8%	18 8 2	0 0	9 0	Oct. 1876
7287 Lusatian, Portugal* (25 shares)	2 0 0	5 2	5 6 7%	0 1 0	0 0	0 1 0	July 1875
20000 Mammoth Copperopolis of Utah, <i>c.</i> , <i>s.</i>	3 1 0	—	—	1 1 6	0	1 6	Mar. 1873
5000 Mountain Chief, <i>s.</i> , Utah*†	10 0 0	—	—	0 5 0	0 0	0 5 0	Dec. 1872
10000 Prussian Mining & Iron-works, <i>c.</i> , <i>t.</i>	30 0 0	—	—	0 4 0	0 0	0 4 0	Jan. 1873
16000 Pontigbalard, <i>s.</i> , France†	20 0 0	18	19 21	6 0 0	0 0	3 0 0	July 1873
15000 Post Phillip, <i>g.</i> , Clunes*†	1 0 0	—	—	2 2 1	1 1	1 1 11	Nov. 1876
41000 Richmond Consol., <i>s.</i> , Nevada*†	8 0 0	9 1	9 5 9%	1 8 0	0 0	0 1 0	Jan. 1872
40000 Santa Barbara, <i>p.</i> , Brazil	0 10 0	2 2	2 2 2%	3 9 0	0 0	0 7 6	Oct. 1876
20000 Scottish Australian Mining Co.*†	1 0 0	2 13	2 13 2%	0 2 6	0 0	0 1 3	Oct. 1876
86000 Scottish Austral. Mining Co., New... 12500 Sierra Buttes, <i>g.</i> , California*†	0 5 0	—	—	17 14 per cent.	0	Nov. 1876	1878
80000 South Aurora, <i>s.</i> , Nevada	2 0 0	—	—	17 14 per cent.	0	Nov. 1878	1878
215000 St. John del Rey* (45 stock and multiples dealt in)	—	325 325	—	3 16 0	0 0	0 2 0	Oct. 1878
15000 Sweetland Creek, <i>g.</i> , California*†	4 0 0	—	—	0 14 2	0 0	2 0 2	Nov. 1873
20000 Tolima, <i>g.</i> , So. America	5 0 0	3 14	3 14	0 16 0	0 0	2 0 2	Oct. 1878
25000 Victoria (London), <i>g.</i> , Australia	1 0 0	—	—	0 11 10 1/2	0 0	0 10 10	Aug. 1876
15000 Western Andes, <i>s.</i> , New Granada	5 0 0	—	—	12 per cent.	0	per an	July 1876
21000 W. Prussian (\$500 pref. sh. 9% paid)	10 0 0	11 14	11 11 1%	0 16 0	0 0	0 8 0	Sept. 1876

NON-DIVIDEND FOREIGN MINES.

UNLISTED STOCKS, BONDS, & ETC.

FOREIGN AND MISCELLANEOUS STOCKS, BONDS, LOANS, AND TRUSTS
Closing Prices.

	Closing Prices.
Foreign and Col. Gov. Trust, 6 p. cent.	65 73
Do., 5 per cent., 2d issue	51 56
Do., 6 per cent., 3d issue	57 62
Do., 1872, 4th issue	52 57
Do., 1873, 5th issue	53 58
Peruvian, 1870, 6 per cent.	18 19
Do., 1872, 5 per cent.	15 15½
Russian, 5½ per cent. L. Mort.	72 75
Spanish, Quicksilvers. Mort. 5 n. cent.	91 93

NON-DIVIDEND MINES.

Shares.	Mines.	Paid.	Last wk	Clos. pr.	Shares.
40000	Aberdaunant, <i>t.</i> Llandiloes*	1 0 0 ..	1 1/2 ..	1 1/2 1 1/2	\$100
18000	Aberystwith, <i>s. i.</i> Cardigan	5 0 0 ..	.. ..	.. ..	15
7800	Alvig, & Burg., <i>t.</i> St. Aust. (M.sh.)	2 0 0 ..	2 1/2 ..	2 1/2 2 1/2	5
7800	Amrobie Lake, <i>t.</i> c. Liskeard	1 18 6 ..	.. ..	.. ..	100
12000	Ashton, <i>c.</i> Carmarthenshire*	5 0 0 ..	1 1/2 ..	1 1/2 1 1/2	10
50000	Ballycummink*, <i>c.</i> Schul	2 0 0 ..	.. ..	.. ..	10
12000	Bedford United, <i>c.</i> Tavistock	17 6 7 ..	5 ..	5 ..	10
28000	Beestone, <i>c.</i> Devon (27,000 f.y. pd.)	1 0 0 ..	2 1/2 ..	2 1/2 2 1/2	10
15000	Blaen United, <i>s. s.</i> Cardigan	1 0 0 ..	1 1/2 ..	1 1/2 1 1/2	10
3937	Bine Hills, <i>t.</i> c. Arnes	3 5 0 ..	.. ..	.. ..	4
38000	Boddiris, <i>t. b.</i> Denbighshire	1 0 0 ..	1 1/2 ..	1 1/2 1 1/2	50
20000	Bowdon Hill, <i>ma</i>	.. ..	.. ..	.. ..	100
6000	Bradwell Moss Rake	1 0 0 ..	1 1/2 ..	1 1/2 1 1/2	50
28000	Brynamor, <i>c.</i> Cardigan	1 0 0 ..	.. ..	.. ..	50

IRON AND COAL COMPANIES.

IRON AND COAL COMPANIES.	Companys.	Paid.
Abbott, John, and Co. [L.]	£75 0 0 ..	14
Albion Steel and Wire Co. [L.]	14 0 0 ..	13
Altamit Colliery Co. [L.]	6 0 0 ..	
Ashbury Co. [L.]	90 0 0 ..	40
Bagnall, John, and Sons [L.]	10 0 0 ..	6
Bennet Coal Co. [L.]	10 0 0 ..	4
Bilbao Iron Ore Co. [L.]	50 0 0 ..	24
Bilson & Crump Meadow Coll. Co. [L.]	10 0 0 ..	
Blaen Cwmbran Coal Co. [L.]	4 0 0 ..	
Blaenavon and Steel Co. [L.]	50 0 0 ..	
Bolestock, Vaughan, and Co. [L.]	45 0 0 ..	7
Bowling Iron Co. [L.]	50 0 0 ..	
Britannia Ironworks [L.]	25 0 0 ..	
Brown, Bailey, and Dixon [L.]	40 0 0 ..	22
Brown, John, and Co. [L.]	70 0 0 ..	24
Cake摩尔 Colliery Co. [L.]	5 0 0 ..	
Cammell and Co. [L.]	80 0 0 ..	
Cancoold and Huntington Coal [L.]	2 0 0 0 ..	34
Cardiff & Swansea St. Coal Co. [L.]	8 0 0 ..	
Cardigan Steel and Wire Co. [L.]	8 10 0 ..	
Central Swedish Iron and Steel [L.]	10 0 0 ..	1
Chapel House Colliery.	5 0 0 ..	24
Charlton Iron Co. [L.]	50 0 0 ..	34
Chatterley Iron Co. [L.]	45 0 0 ..	24
Chiltington Iron Co. [L.]	10 0 0 ..	64
Clee Hill Colliery Co. [L.]	1 0 0 ..	
Consett Iron Co. [L.]	7 10 0 ..	104
Consett Spanish Ore [L.]	1 0 0 ..	104
Cooke, William, and Co. [L.]	40 0 0 ..	32
Darlington Iron Co. [L.]	10 0 0 ..	91
Davy Brothers [L.]	22 10 0 ..	94
Diamond Fuel Co. [L.]	5 0 0 ..	
Ebbw Vale Co. [L.]	29 0 0 ..	19
Fox, Samuel, and Co. [L.]	80 0 0 ..	31
General Mining Ass. [L.] (Returned)	9 0 0 ..	34
Great Western Coal Co. [L.]	17 0 0 ..	
Gwynnwilliam Colliery Co. [L.]	2 0 0 ..	
Hopkins, Gilkes, and Co. [L.]	11 0 0 ..	8
Knowles, Andrew, and Sons [L.]	17 0 0 ..	4
Llany Hall Coal, Iron, & Firebrick [L.]	10 0 0 ..	10
Littledale Woodside Coll. Co. [L.]	5 0 0 ..	
Llynni, Ogmore, & Tondu Co. [L.]	50 0 0 ..	
Lydney and Wigpool Iron Ore [L.]	8 5 0 0 ..	13
Märbelha Iron Ore Co. [L.]	10 0 0 ..	
Mersey Steel and Iron Co. [L.]	5 0 0 ..	74
Midland Iron Co. [L.]	5 0 0 ..	3
Mold Argued Colliery Co. [L.]	5 0 0 ..	
Monkland Iron and Coal Co. [L.]	10 0 0 ..	
Mwynddy Iron Ore [L.]	3 10 0 ..	74
Nant-y-Glo and Blaina (8 p. c. pref.)	100 0 0 ..	19
Nerbudda Coal and Iron	0 8 0 0 ..	
New Sharlston Collieries [L.] Pref...	20 0 0 ..	
Newport Abercarn Coal Co. [L.]	10 0 0 ..	64
Northmptn. Coal, Iron & Wagon [L.]	8 0 0 ..	
Oldland Iron Co. [L.]	8 0 0 ..	
Norton Green Coal Co. [L.]	1 0 0 ..	
Palmer's Shipbuilding and Iron [L.]	25 0 0 ..	18
Parkgate Iron Co. [L.]	65 0 0 ..	3 d
Patent Nut and Bolt Co. [L.]	14 0 0 ..	7
Patent Shaft and Arlestreet [L.]	10 0 0 ..	
Pelsall Coal and Iron [L.]	15 0 0 ..	9
Phoenix Bessemer Co. [L.]	40 0 0 ..	
Rhymney Iron Co. [L.]	80 0 0 ..	23
Sandwell Park Colliery Co. [L.]	100 0 0 ..	
Ditto New...	10 0 0 ..	
Shotts Iron Co. [L.]	50 0 0 ..	14
Sheepbridge Iron and Coal [L.]	85 0 0 ..	34
Silkstone & Dodworth Cl. & Iron [L.]	27 0 0 ..	10
Skerne Ironworks [L.]	20 0 0 ..	13

WAGON COMPANIES

WAGON COMPANIES.	
Birmingham Wagon Co. [L.]	10 0 6 ... 2 1/4
British Wagon Co. [L.]	10 0 6 ... 3
Sheffield Wagon Co. [L.]	15 0 6 ... 4
Yorkshire Wagon Co. [L.]	10 0 6 ... 4 1/4

TELEGRAPH COMPANIES.	
Anglo-American	100 0 0 ... 60
Brazilian Submarine	10 0 0 ... 40
Direct United States Cable	20 0 0 ... 116
Eastern	10 0 0 ... 64
East, Extern., Australia and China	10 0 0 ... 75
Great Northern	10 0 0 ... 7
North European	25 0 0 ... 18
Mediterranean Extension	10 0 0 ... 23
Portuguese	8 0 0 ... 12
Submarine	100 0 0 ... 250
West India and Panama	10 0 0 ... 40
Western and Brazilian	20 0 0 ... 40
Western Union, 7,700,000, Mort. Bond \$100,000	40

TELEGRAPH COMPANIES.

Anglo-American	100	0	0	60
Brazilian Submarine	10	0	0	45
Direct United States Cable	20	0	0	115
Eastern	10	0	0	65
East, Extern., Australia and China	10	0	0	75
Great Northern	10	0	0	7
Middle-European	25	0	0	18
Mediterranean Extension	10	0	0	24
Submarine	0	0	0	115
West India and Panama	10	0	0	230
Western and Brazilian	20	0	0	255
Western Union, 7,000,000 Met. Rods	2,310,000	0	0	45

MISCELLANEOUS.

lantic and Great Western Leased Lines, Rental Trust	100	0	0	40
ustral. Mort. Land and Finance [L.]	5	0	0	34
ustralian Agricultural	21	10	0	99
onside Engine [L.]	7	0	0	4
altimore and Ohio, 6 per cent.	100	0	0	11 1/2
ent of New Jersey Con. Mort.	100	0	0	78
Cent. Pacific of Calif., 1st Mort. 6 p. c.	100	0	0	102 1/2
ty of London Real Property [L.]	12	0	0	35
upper Miners of Eng. (7 p. c. p. e. 25)	25	0	0	25
reid Fonder of England [L.]	5	0	0	30
iamond Rock Boring	4	1	0	36
nglish and Foreign Credit	8	0	0	46
ore Street Warehouse [L.]	14	0	0	124
ester, Porter, and Co. [L.]	10	10	0	102
en. Phon. & Chem. Works Co. [L.]	5	0	0	45
aisdale Whinstone Quarry	1	0	0	0
udson's Bay Company	17	0	0	15 1/2
untington Copper and Sul. Co.	9	0	0	85
inois Central, \$100 shares	100	0	0	55
inois & St. Louis Bridge, 1st Mort.	100	0	0	92
lito, 2nd Mort., 7 per cent.	100	0	0	32
lito, 5th Mort., 6 per cent.	100	0	0	59
lito, 6 per cent.	100	0	0	103
perial Credit [L.]	7	10	0	74
itto, Surplus Certificate	—	5	0	—
igh Val. Con. Mort., A, 6 p. cent.	100	0	0	99
lifer's Safe [L.]	19	0	0	11
ational Discount [L.]	5	0	0	34
Cent. Rail. Con. Mort., 6 per cent.	10	0	0	88
ent Gunpowder Company	5	0	0	45
awson and Co. [L.]	6	0	0	par
enimula and Oriental Steam	50	0	0	35
enial Gen. Mort. 6 p. cent., 1910	100	0	0	107
ton, Con. Sink. Fund, 6 p. ct., 1905	100	0	0	100
otish Anst. Investment Company	100	0	0	170
itto, 5 per cent. Preference	100	0	0	121
iber Light (ord. sh.)	10	0	0	—
iber Canal shares	20	0	0	—
legraph Construe. & Maint. [L.]	12	0	0	23
ito, Second Bonus Three per Cent	5	0	0	2 1/2
haral Sulphur and Copper Co.	16	0	0	21
nion Pacific Land Grant, 1st Mort.	100	0	0	97
acific Bell Telephone M.	—	—	—	—

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